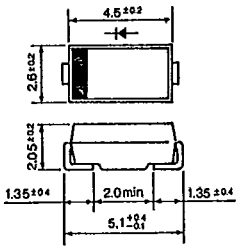
SFPB/AK/EK/RK/FMB/CTB/RBA/RBV

Rating/Characteristics / Type No.	Absolute Maximum Ratings							Electrical Characteristics (Ta=25°C)						Others			
	VRSM (V)	VRM	Io (A)	IFSM (A)	I²t (A²S)	Tj (°C)	Tstg (°C)	VF (V)		IR (mA)	IR(H) (mA)	trr (μs)	Rth(j-ℓ) (°C/W)	Outline Drawing	Weight(g)	Taping	Note
	Per chip		with Fin	50Hz Half Sine Wave Single Pulse				Max. per chip	IF (A)	VR=VRM max (per chip)	VR=VRM, Tj=125°C max (per chip)	IF/IRP (mA)					
SFPB-54	45	40	1.0	60				0.55	1.0	1.0	50	0.05		⑬	0.072	Available	Surface Mount
SFPB-64	45	40	1.5						2.0								
SFPB-56	60	60	0.7	10				0.62	0.7		7.5	0.1					
SFPB-59	90	90						0.81			5.0						
AK 03	35	30	1.0	25				0.6	1.0		50 (Tj=100°C)			⑭	0.13		
AK 04	45	40															
AK 06	60	60	0.7	10				0.62	0.7		7.5						
AK 09	90	90						0.81			5.0						
EK 03	35	30	1.0	40				0.55	1.5	5.0	50	0.2		⑯	0.3		
EK 04	45	40															
EK 06	60	60	0.7	10				0.62	0.7	1.0	7.5	0.1					
EK 09	90	90						0.81			5.0						
EK 13	35	30	1.5	40				0.55	2.0	5.0	50	0.2		⑰			
EK 14	45	40															
EK 16	60	60		25				0.62	1.5	1.0	15	0.1					
EK 19	90	90		40				0.81		2.0	10						
RK 13	35	30	1.7	60				0.55	2.0	5.0	50	0.2		⑱	0.45		
RK 14	45	40															
RK 16	60	60	1.5	25				0.62	1.5	1.0	15	0.1					
RK 19	90	90		40				0.81		2.0	10						
RK 33	35	30	2.5	50				0.55	2.5	5.0	50	0.1		⑮	0.6		
RK 34	45	40															
RK 36	60	60	2.0	40				0.62	2.0	2.0	20	100/100					
RK 39	90	90		50				0.81		3.0	15						
RK 43	35	30	3.0	80				0.55	3.0	5.0	50			⑲	1.2		
RK 44	45	40															
RK 46	60	60	3.5	70				0.62	3.5	3.0	35						
RK 49	90	90		60				0.81		5.0							
FMB-G14L	45	40	5.0	60	18	−40～+125		0.55	5.0	5.0	100			⑳	2.1		
FMB-G24H	45	40	10	150	112.5				10	10	65						
FMB-23	35	30	4.0	50					2.0	5.0	35			㉑			
FMB-24	45	40															
FMB-26	60	60		40	8			0.62		1.0	20						
FMB-29	90	90		50	12.5			0.81		3.0	15						
FMB-24M	45	40	6.0	60	18			0.55	3.0	5.0	35	0.1		㉑			
FMB-24H	40	40	15	100	50				7.5	7.5	50						
FMB-23L	35	30	10	60					5.0	5.0	35						
FMB-24L	48	40															
FMB-26L	60	60		50	12.5			0.58	4.0	2.5	50						
FMB-29L	90	90	8.0	60	18			0.81		5.0	35						
FMB-33S	35	30	12	75				0.58	6.0	5.0	35			㉒	5.5		
FMB-34S	48	40															
FMB-33	35	30	15	150				0.55	7.5	10	65						
FMB-34	48	40															
FMB-36	60	60		75	28			0.62		5.0	75		2.0				
FMB-39	90	90		100	50			0.81		10	50						
FMB-33M	35	30	30	300				0.55	15	20	100	500/500					
FMB-34M	48	40															
FMB-36M	60	60		150	112.5			0.62		10	150		2.0				
FMB-39M	90	90	20					0.81	10	15	60						
CTB-24	45	40	4.0	60				0.55	2.0	5	50	0.2		㉓	2.6		
CTB-24L	48	40	10	60					5.0		35	0.1					
CTB-33S	35	30	12	75				0.58	6.0		40	100/100		㉔	6.1		
CTB-34S	48	40									35						
CTB-33	35	30	15	150				0.55	10	10	80						
CTB-34	48	40									65						
CTB-33M	35	30	30	300					15	20	100	500/500					
CTB-34M	48	40															
RBA-406B	60	60	4.0	40				0.62	2.0	2.0	20	100/100	5.0	㉕	4.25		

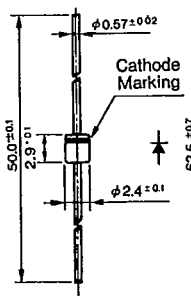
For Pulse Rectification

T-23-01

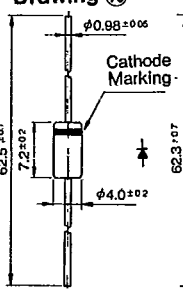
Outline Drawing ⑬



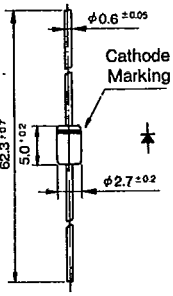
Outline Drawing ⑭



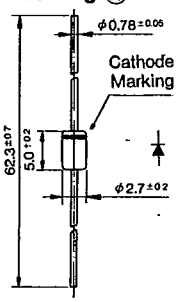
Outline Drawing ⑮



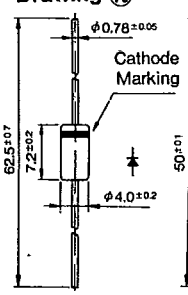
Outline Drawing ⑯



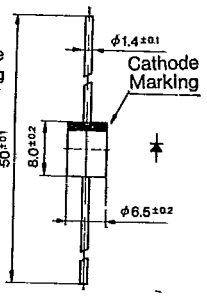
Outline Drawing ⑰



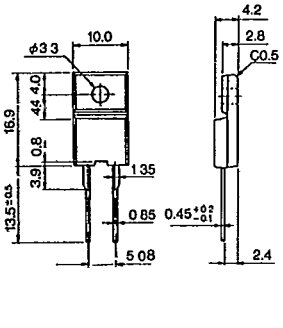
Outline Drawing ⑱



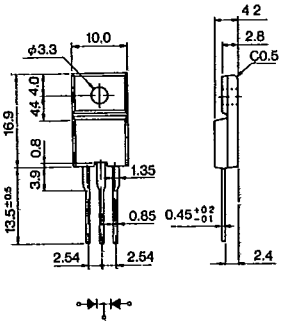
Outline Drawing ⑲



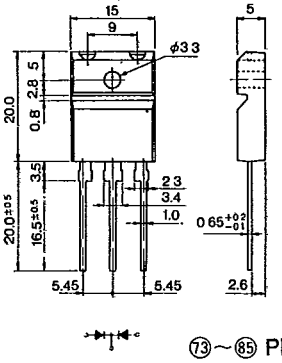
Outline Drawing ⑳



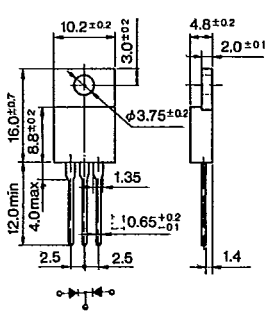
Outline Drawing ㉑



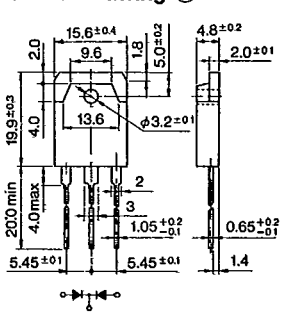
Outline Drawing ㉒



Outline Drawing ㉓

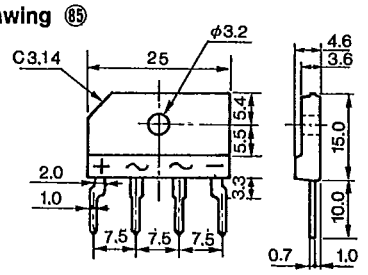


Outline Drawing ㉔



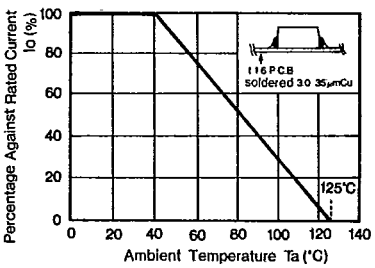
㉓～㉕ Plastic Molded, Flammability : UL94V-0 or Equivalent

Outline Drawing ㉕



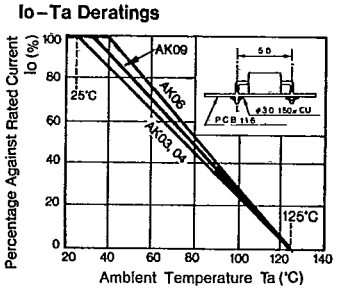
SFPB-54.64.56.59

Io–Ta Deratings



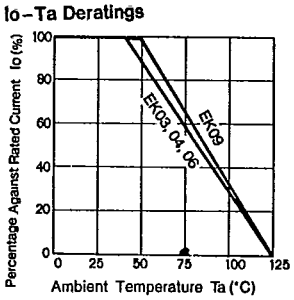
AK 03.04.06.09

Io–Ta Deratings

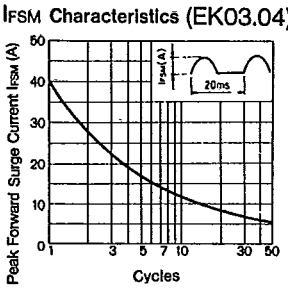


EK 03
EK 04
EK 06
EK 09

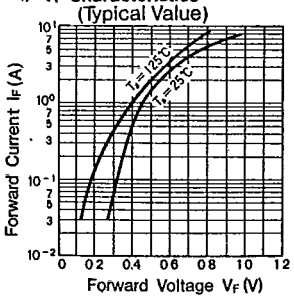
Io–Ta Deratings



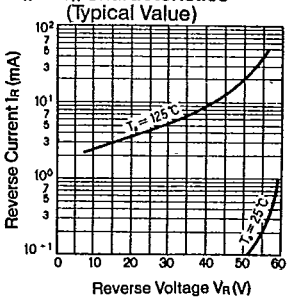
IFSM Characteristics (EK03.04)



IF–VF Characteristics (Typical Value)

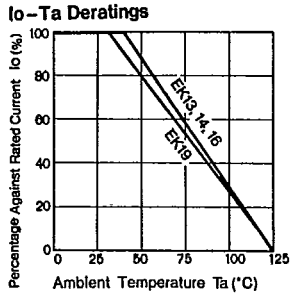


IR – VR Characteristics (Typical Value)

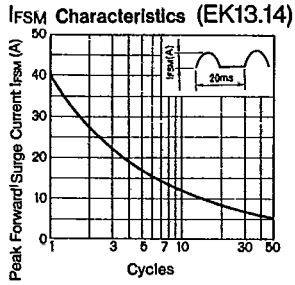


EK 13
EK 14
EK 16
EK 19

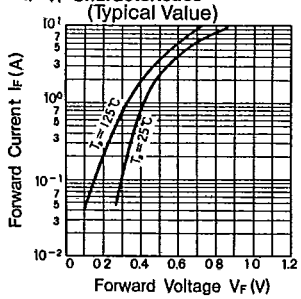
Io–Ta Deratings



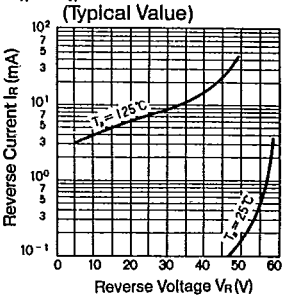
IFSM Characteristics (EK13.14)



IF–VF Characteristics (Typical Value)

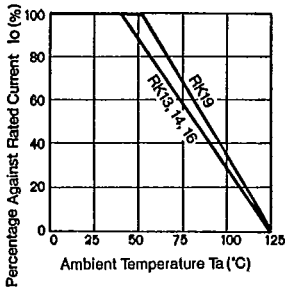


IR – VR Characteristics (Typical Value)

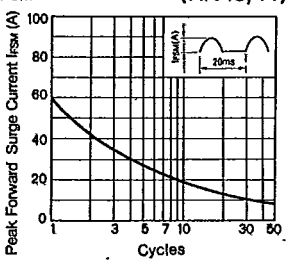


RK 13
RK 14
RK 16
RK 19

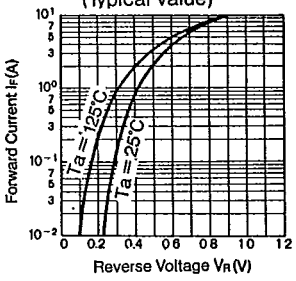
Io–Ta Deratings



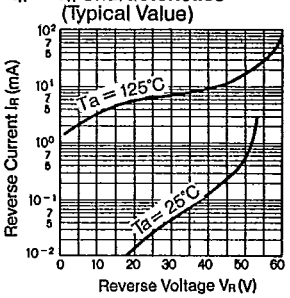
IFSM Characteristics (RK 13, 14)



IF–VF Characteristics (Typical Value)

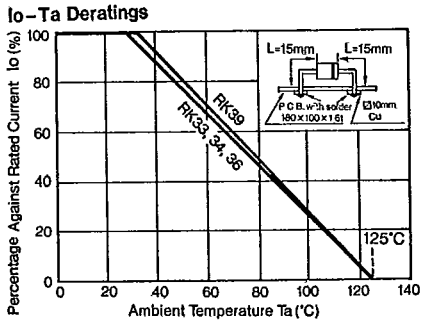


IR – VR Characteristics (Typical Value)



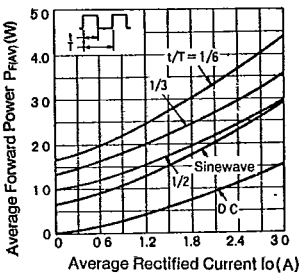
RK 33
RK 34
RK 36
RK 39

Io–Ta Deratings

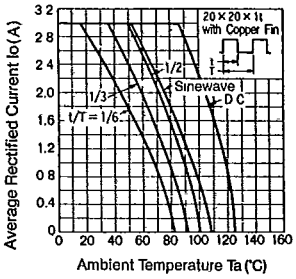


RK 43 RK 44

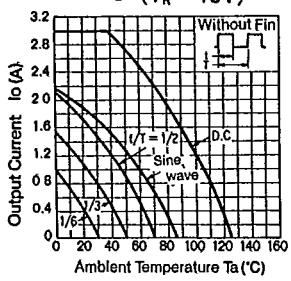
PF(AV) – Io Characteristics (VR = 40V)



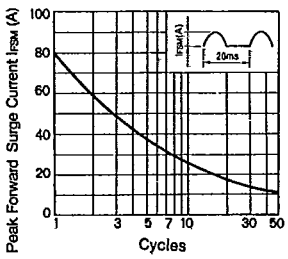
Io–Ta Deratings (VR = 40V)



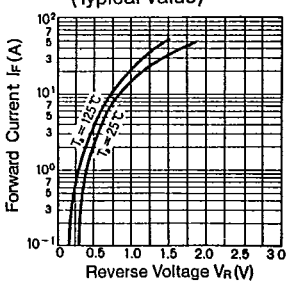
Io–Ta Deratings (VR = 40V)



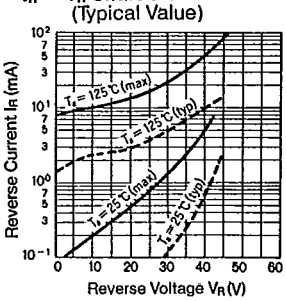
IFSM Characteristics



IF–VF Characteristics (Typical Value)

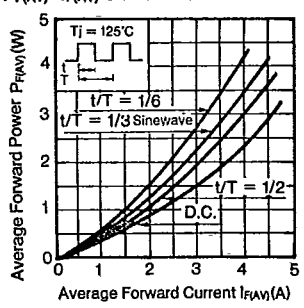


IR – VR Characteristics (Typical Value)

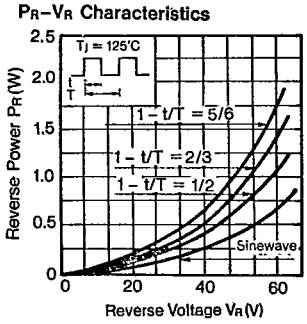


RK 46

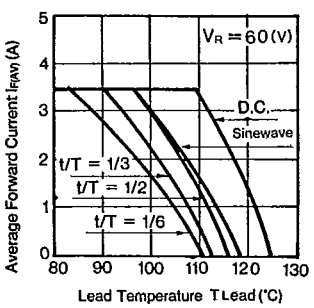
PF(AV)–IF(AV) Characteristics



PR–VR Characteristics

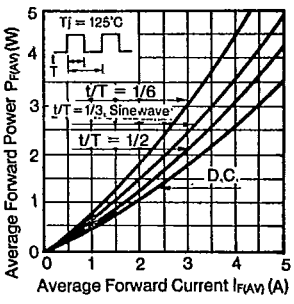


IF(AV)–TLead Characteristics

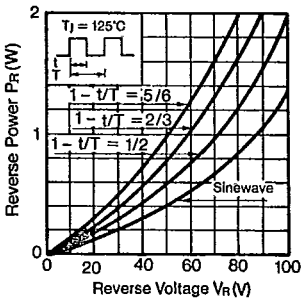


RK 49

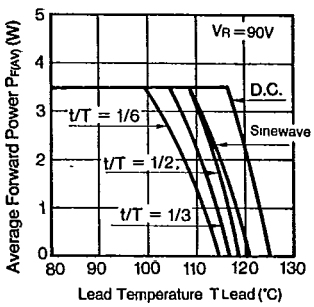
PF(AV)–IF(AV) Characteristics



PR–VR Characteristics



IF(AV)–TLead Characteristics



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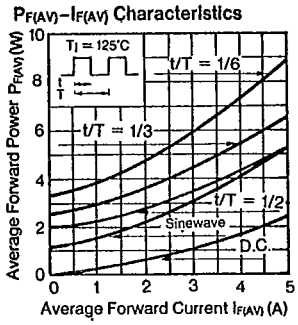
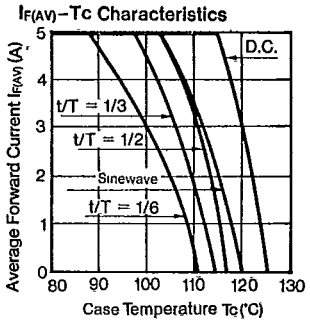
FMB-G14L

PF(AV)–IF(AV) Characteristics

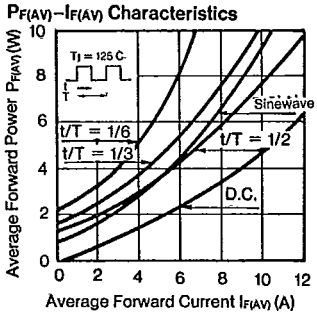


IF(AV)–Tc Characteristics

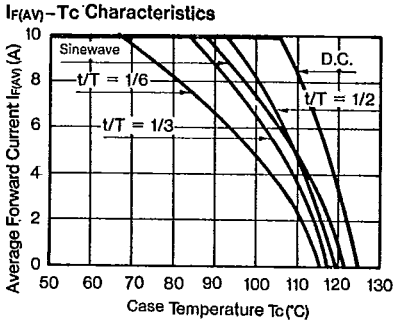


FMB-G24H

PF(AV)–IF(AV) Characteristics

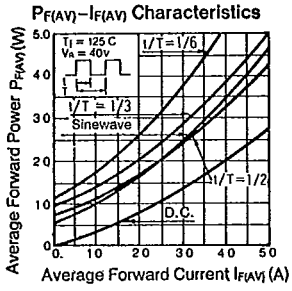


IF(AV)–Tc Characteristics

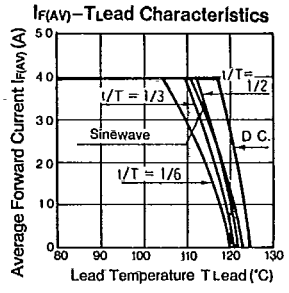


FMB-23
FMB-24

PF(AV)–IF(AV) Characteristics

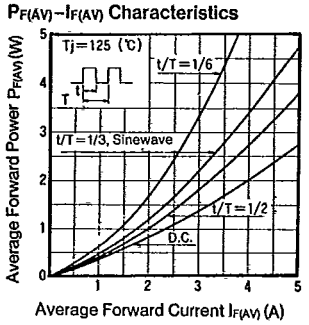


IF(AV)–TLead Characteristics

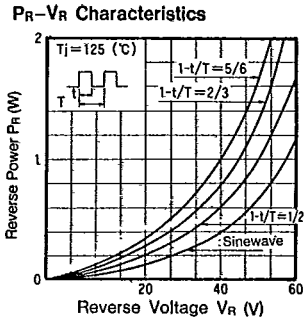


FMB-26

PF(AV)–IF(AV) Characteristics

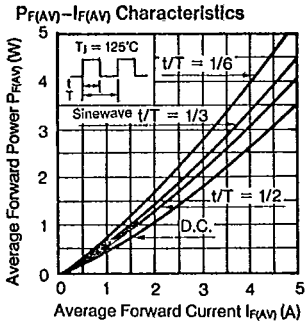


PR–VR Characteristics

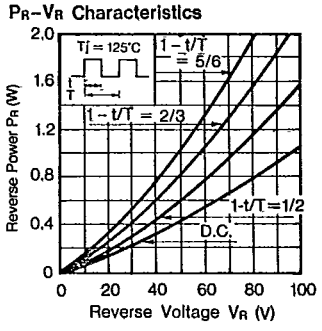


FMB-29

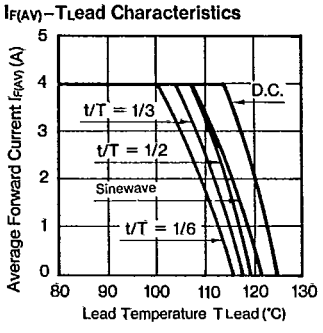
PF(AV)–IF(AV) Characteristics



PR–VR Characteristics

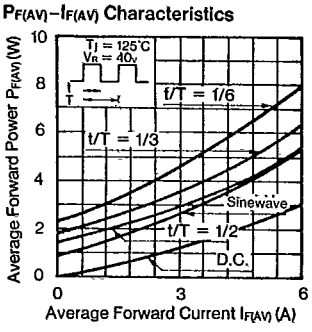


IF(AV)–TLead Characteristics



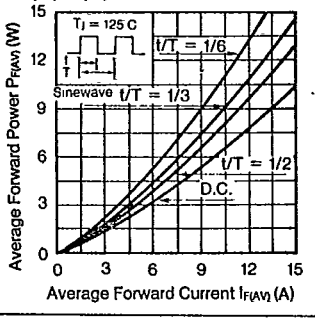
FMB-24M

PF(AV)–IF(AV) Characteristics

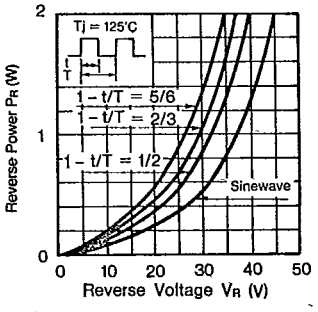


FMB-24H

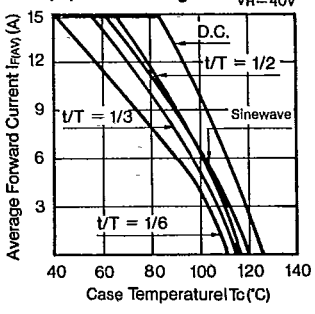
PF(AV)–IF(AV) Characteristics



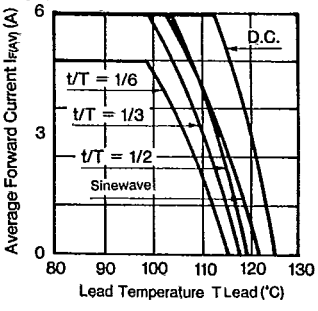
PR–VR Characteristics



IF(AV)–Tc Deratings VR=40V

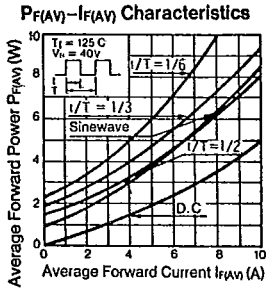


IF(AV)–TLead Characteristics

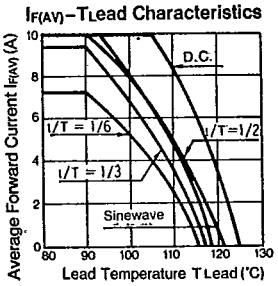


FMB-23L
FMB-24L

PF(AV)–IF(AV) Characteristics

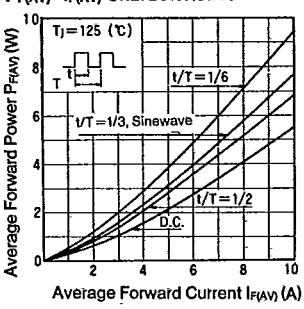


IF(AV)–TLead Characteristics

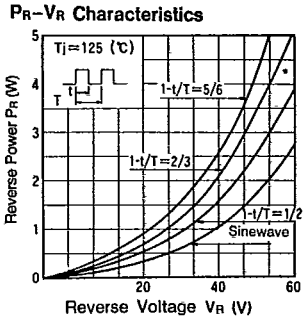


FMB-26L

PF(AV)–IF(AV) Characteristics

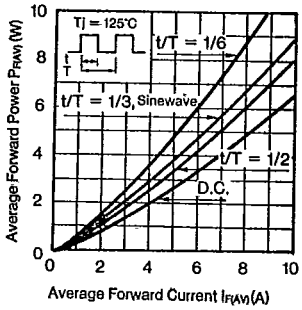


PR–VR Characteristics

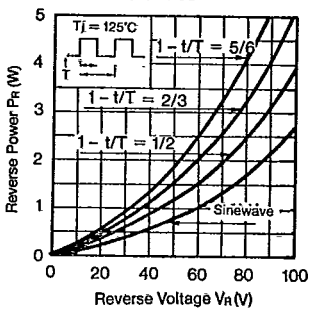


FMB-29L

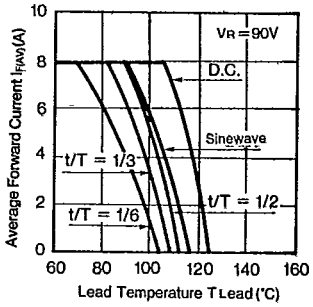
$P_{F(AV)} - I_{F(AV)}$ Characteristics



$P_R - V_R$ Characteristics

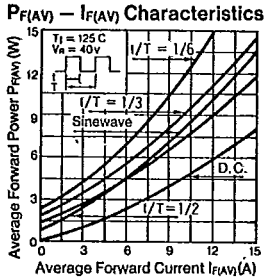


$I_{F(AV)} - T_{Lead}$ Characteristics

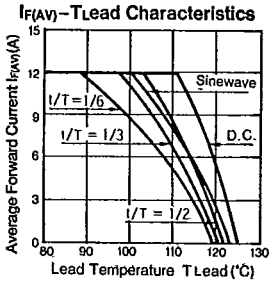


FMB-33S
FMB-34S

$P_{F(AV)} - I_{F(AV)}$ Characteristics

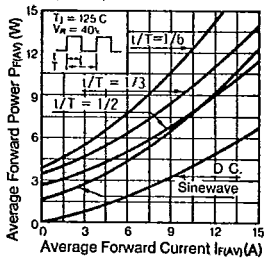


$I_{F(AV)} - T_{Lead}$ Characteristics

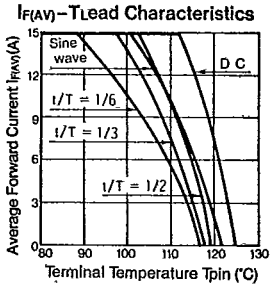


FMB-33
FMB-34

$P_{F(AV)} - I_{F(AV}$ Characteristics

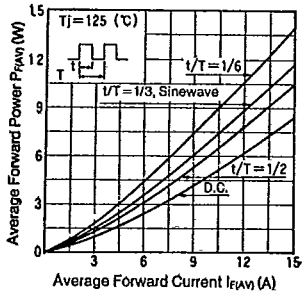


$I_{F(AV)} - T_{Lead}$ Characteristics

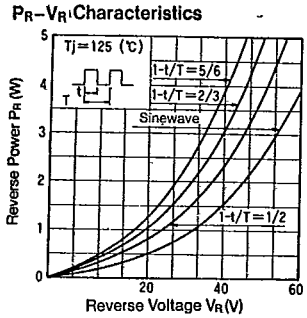


FMB-36

$P_{F(AV)} - I_{F(AV}$ Characteristics

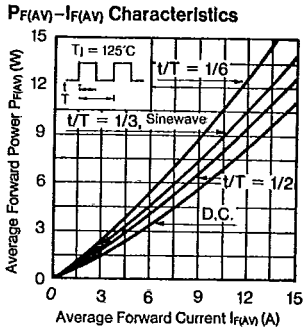


$P_R - V_R$ Characteristics

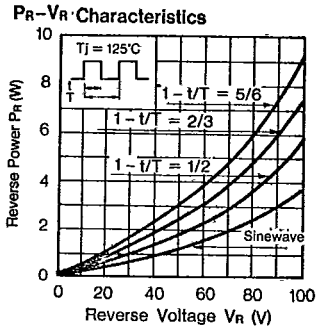


FMB-39

$P_{F(AV)} - I_{F(AV)}$ Characteristics

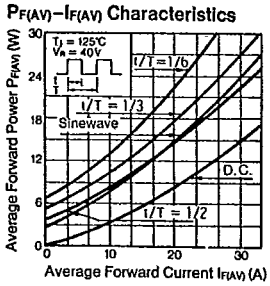


$P_R - V_R$ Characteristics

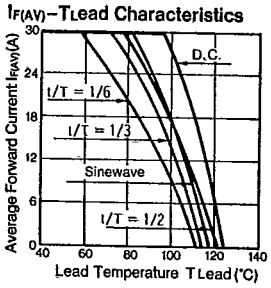


FMB-33M
FMB-34M

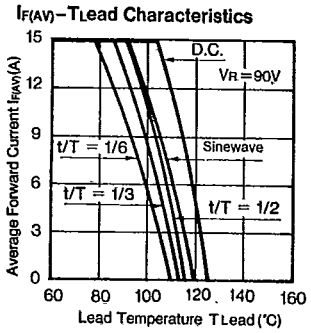
$P_{F(AV)} - I_{F(AV)}$ Characteristics



$I_{F(AV)} - T_{Lead}$ Characteristics

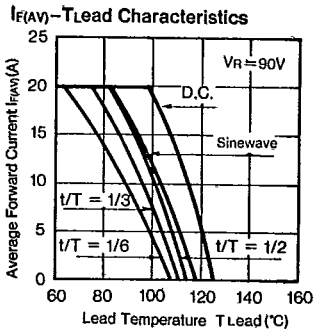


$I_{F(AV)} - T_{Lead}$ Characteristics



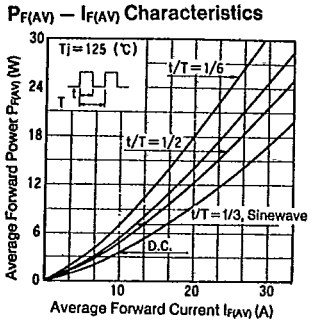
FMB-39M

$I_{F(AV)} - T_{Lead}$ Characteristics

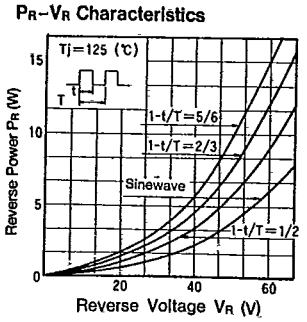


FMB-36M

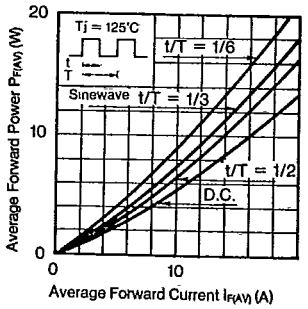
$P_{F(AV)} - I_{F(AV)}$ Characteristics



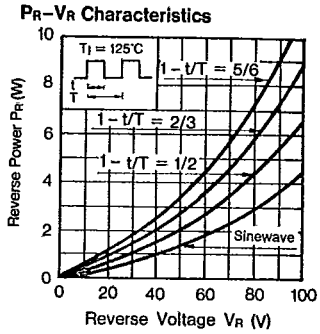
$P_R - V_R$ Characteristics



$P_{F(AV)} - I_{F(AV)}$ Characteristics

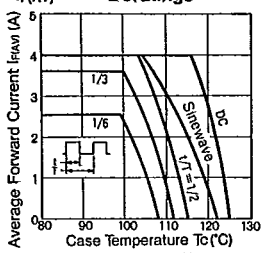


$P_R - V_R$ Characteristics

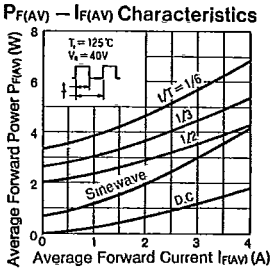


CTB-24

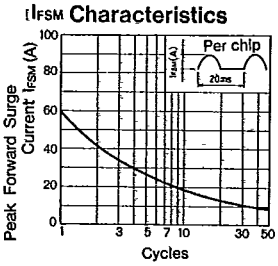
$I_{F(AV)}$ – Tc Deratings



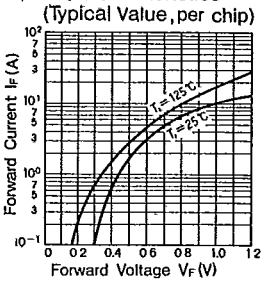
$P_{F(AV)}$ – $I_{F(AV)}$ Characteristics



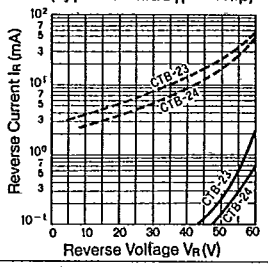
I_{FSM} Characteristics



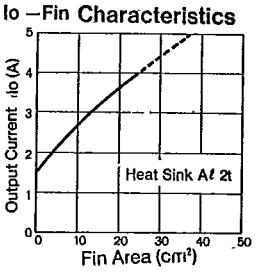
I_F – V_F Characteristics (Typical Value, per chip)



I_R – V_R Characteristics (Typical Value, per chip)

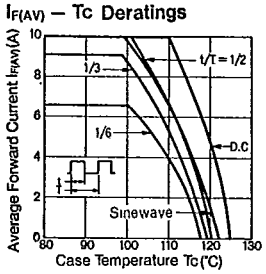


Io – Fin Characteristics

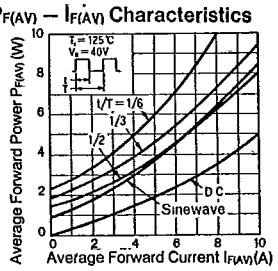


CTB-24L

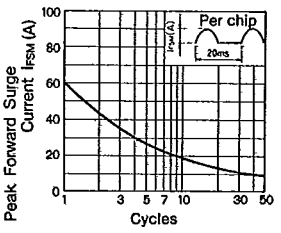
$I_{F(AV)}$ – Tc Deratings



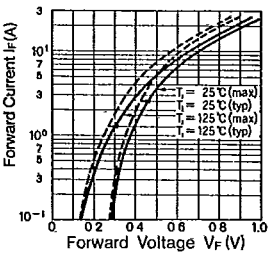
$P_{F(AV)}$ – $I_{F(AV)}$ Characteristics



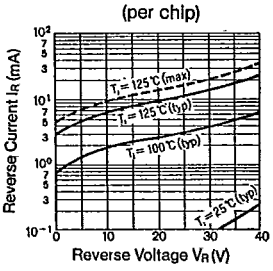
I_{FSM} Characteristics



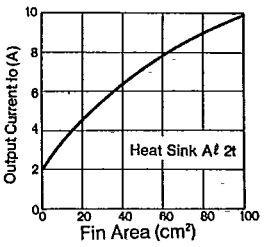
I_F – V_F Characteristics (per chip)



I_R – V_R Characteristics (per chip)

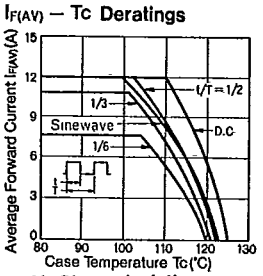


Io – Fin Characteristics

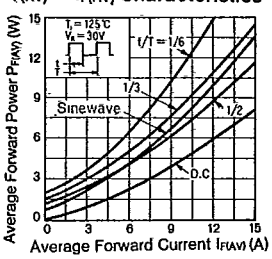


CTB-33S

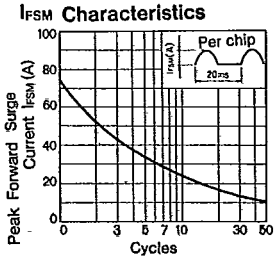
$I_{F(AV)}$ – Tc Deratings



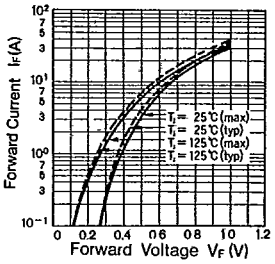
$P_{F(AV)}$ – $I_{F(AV)}$ Characteristics



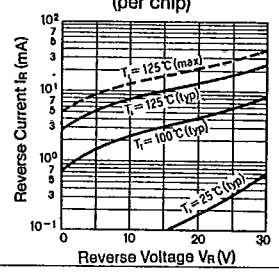
I_{FSM} Characteristics



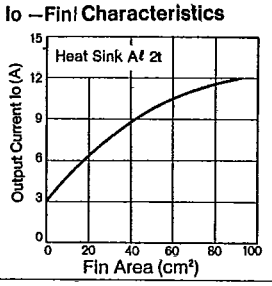
I_F – V_F Characteristics (per chip)



I_R – V_R Characteristics (per chip)



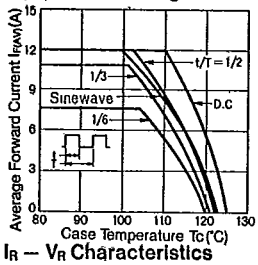
Io – Fin Characteristics



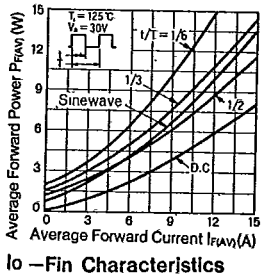
T-23-01

CTB-34S

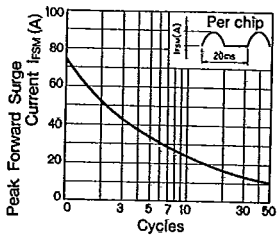
$I_{F(AV)}$ – Tc Deratings



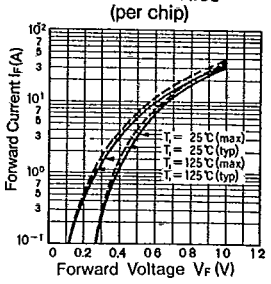
$P_{F(AV)}$ – $I_{F(AV)}$ Characteristics



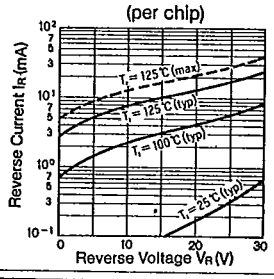
I_{FSM} Characteristics



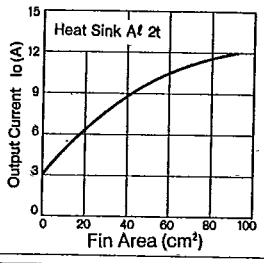
I_F – V_F Characteristics (per chip)



I_R – V_R Characteristics (per chip)

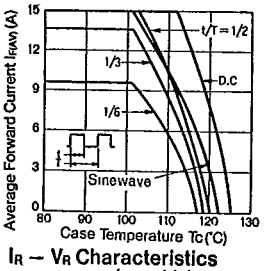


Io –Fin Characteristics

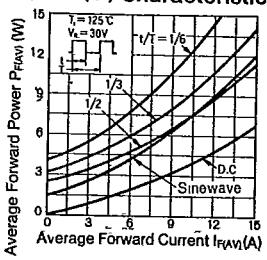


CTB-33 Series

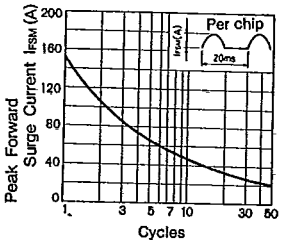
$I_{F(AV)}$ – Tc Deratings



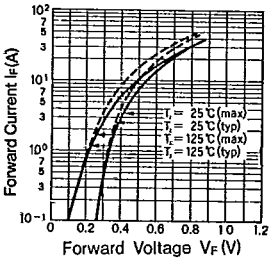
$P_{F(AV)}$ – $I_{F(AV)}$ Characteristics



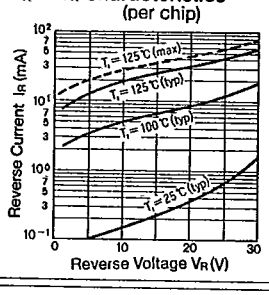
I_{FSM} Characteristics



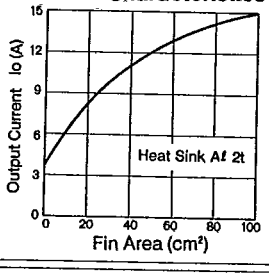
I_F–V_F Characteristics (per chip)



I_R – V_R Characteristics (per chip)

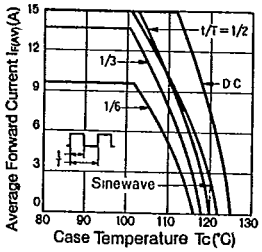


Io – Fin Characteristics

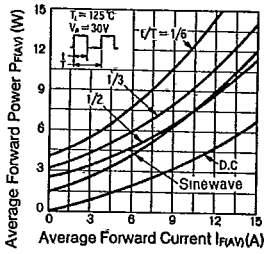


CTB-34

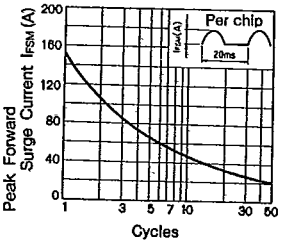
$I_{F(AV)}$ – Tc Deratings



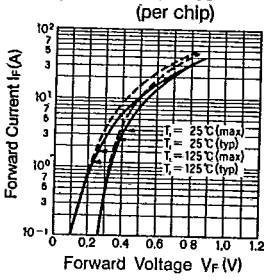
$P_{F(AV)}$ – $I_{F(AV)}$ Characteristics



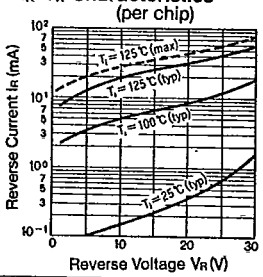
I_{FSM} Characteristics



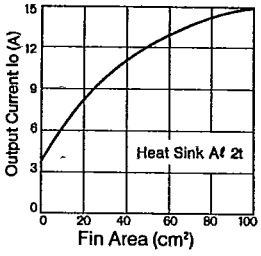
I_F – V_F Characteristics (per chip)



I_R–V_R Characteristics (per chip)

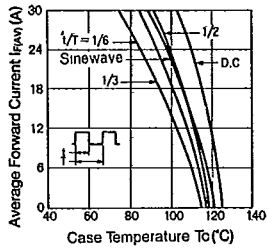


Io –Fin Characteristics

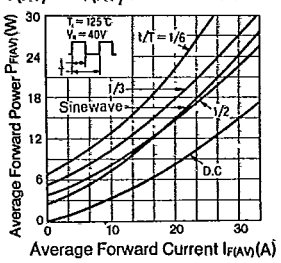


CTB-33M
CTB-34M

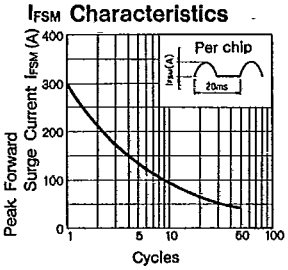
$I_{F(AV)}$ — Tc Deratings



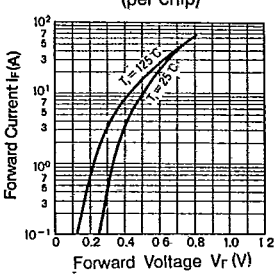
$P_{F(AV)}$ — $I_{F(AV)}$ Characteristics



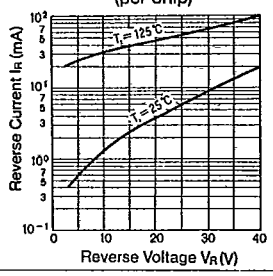
I_{FSM} Characteristics



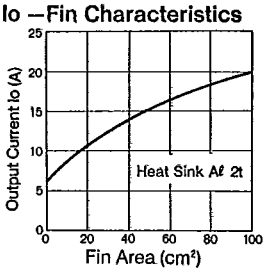
I_F — V_F Characteristics (per chip)



I_R — V_R Characteristics (per chip)



Io —Fin Characteristics

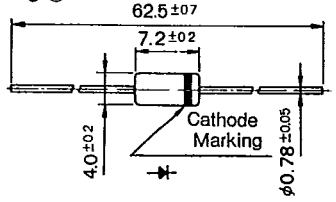


Avalanche Diodes ■V_{RM}:40~400V ■I_{ZSM}:0.1~3.0A

RM/R /RY

Rating/ Characteristics	Absolute Maximum Ratings				Electrical Characteristics (Ta=25°C)						Others			
	V_{RM} (V)	I_{ZSM} (A)	Tj (°C)	Tstg (°C)	V_Z (V)	I_R (μA)	$I_{R(H)}$ (μA)	J (V/°C)	γ_Z (%/°C)	R_Z (Ω)	Outline Drawing	Weight(g)	Taping	Application
Type No.		Square Wave Single Pulse			I_Z=1mA Instantaneous	$V_R=V_{RM}$	$V_R=V_{RM}$	I_Z=1mA	I_Z=1mA	I_Z=0.5~1.5A				
RM 25	40	3.0	−40~+130		50~61.5	5.0	20 (Ta=80°C)	—	0.09typ.	5 max		0.44	Available	For Surge Absorption
RM 26	50				60~70									
R 2M	130	1.0(100μs)	−40~+150		135~180	10	50(Ta=100°C)	+0.15typ.	—	—	Ⓐ86	0.44		
RY 23	200	0.1(100μs)	−40~+130		250~400		50 (Ta=80°C)		—	—		0.44		
RY 24	400				400~450									

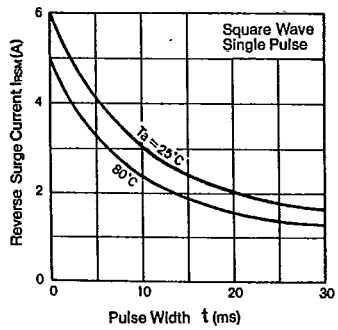
Outline Drawing Ⓐ86



Ⓐ86 Plastic Molded, Flammability : UL94V-0 or Equivalent

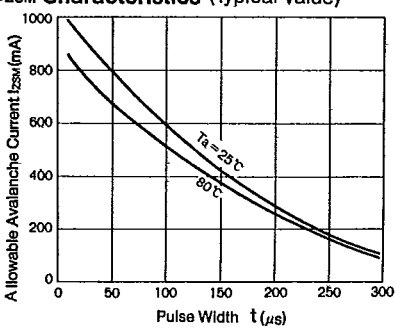
RM 25
RM 26

I_{RSM} Characteristics (Typical Value)



RY 23

I_{ZSM} Characteristics (Typical Value)



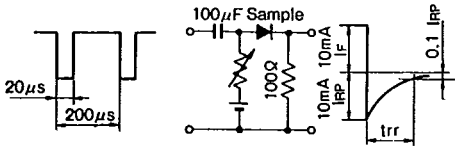
Symbols/trr Measurement Circuit

Symbols

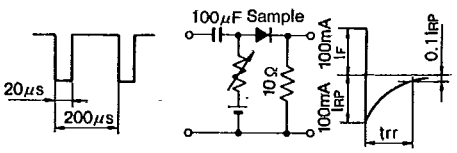
V_{RSM}	Peak Reverse Surge Voltage	I_{RSM}	Peak Reverse Surge Current	Tstg	Storage Temperature
V_{RM}	Peak Reverse Voltage	I_R	Reverse Current	trr	Reverse Recovery Time
V_{P-P}	Reverse Voltage (Peak to Peak)	I_{RP}	Peak Reverse Current	Ct	Total Capacitance Between Terminals
V_R	Reverse Voltage	$I_{R(H)}$	Reverse Current (High Temperature)	Rth(j-c)	Thermal Resistance, Junction to Case
V_F	Forward Voltage	I_Z	Avalanche Current	rz	Temperature Coefficient of Breakdown Voltage
V_B	Breakdown Voltage	I_{ZSM}	Allowable Avalanche Current	Rz	Equivalent Resistance of Breakdown Region
I_O	Average Rectified Forward Current	Ta	Ambient Temperature	$P_{F(AV)}$	Average Forward Power Dissipation
I_F	Forward Current	Tj	Junction Temperature	I^2t	I^2t limiting Value
$I_{F(AV)}$	Average Forward Current	Topr	Operating Ambient Temperature		
I_{FSM}	Peak Forward Surge Current	Tc	Case Temperature		

Reverse Recovery Time Measurement Circuit

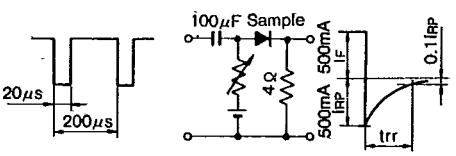
① $I_F = I_{RP} = 10mA$ to $1mA$



② $I_F = I_{RP} = 100mA$ to $10mA$

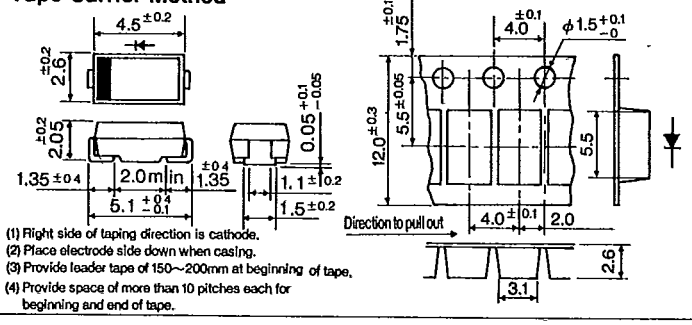
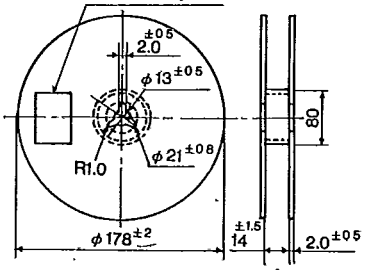
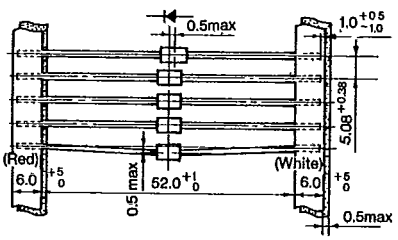
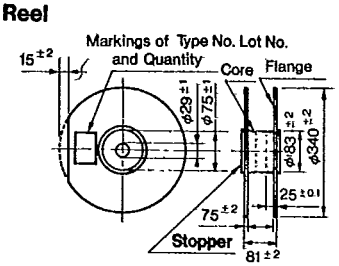


③ $I_F = I_{RP} = 500mA$ to $50mA$

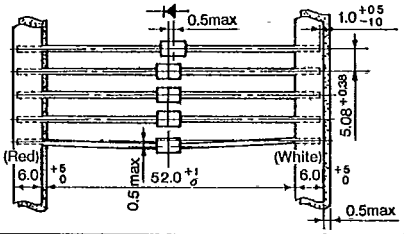
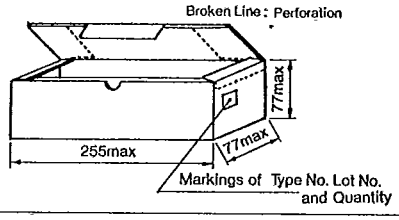
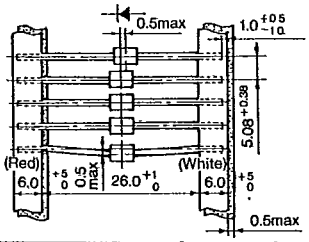
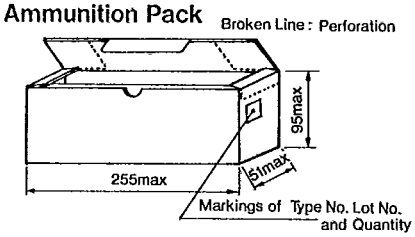
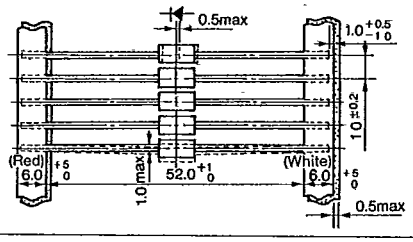
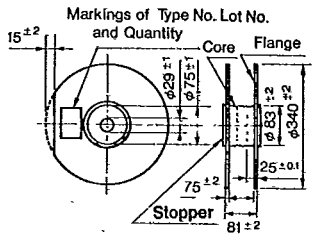
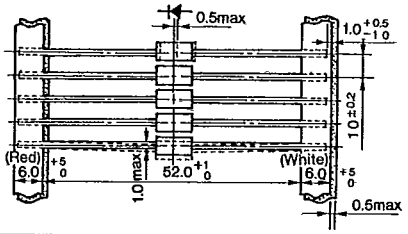
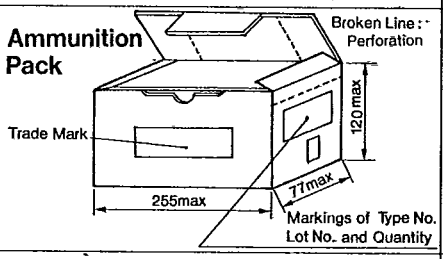
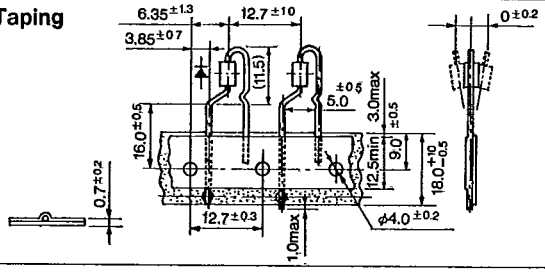
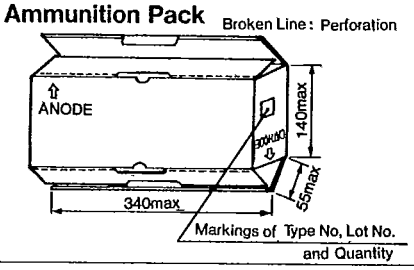
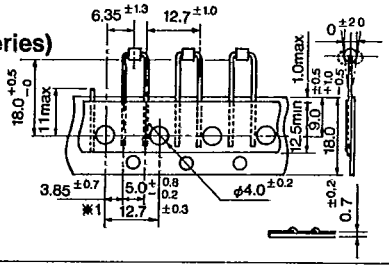
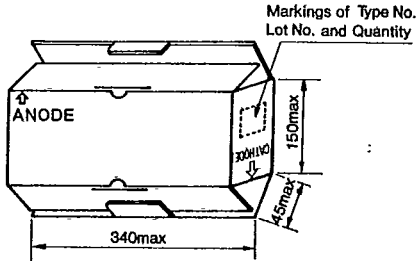
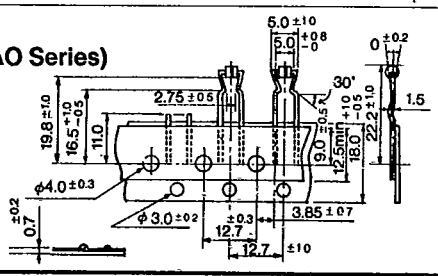


Taping Specifications

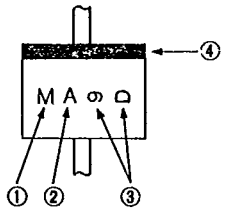
Excluding High Voltage Diodes

Designation	Dimension (in mm)	Packaging Dimension and Marking	Quantity
V Add Suffix [V] to Type No.	**Tape Carrier Method**  (1) Right side of taping direction is cathode. (2) Place electrode side down when casing. (3) Provide leader tape of 150~200mm at beginning of tape. (4) Provide space of more than 10 pitches each for beginning and end of tape.	**Reel** Marking of Type No., Lot No. and Quantity 	1,800 pcs per reel
V Add Suffix [V] to type No.	**Axial Taping** 	**Reel** 	5,000 pcs per reel (2.7φ body) 3,000 pcs per reel (4.0φ body)

Taping Specifications

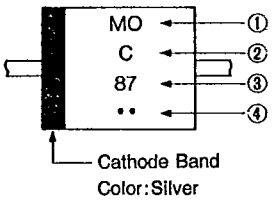
Designation	Dimension (in mm)	Packaging Dimension and Marking	Quantity
V1 Add Suffix [V1] to Type No.	Axial Taping 	Ammunition Pack 	2,000 pcs per box (2.7φ body) 1,000 pcs per box (4.0φ body)
VO Add Suffix [VO] to Type No.	Axial Taping 	Ammunition Pack 	2,000 pcs per box (2.7φ body) (2.4φ body)
V3 Add Suffix [V3] to Type No.	Axial Taping 	Reel 	1,500 pcs per reel (5.2φ body)
V4 Add Suffix [V4] to Type No.	Axial Taping 	Ammunition Pack 	1,000 pcs per box (5.2φ body)
W Add Suffix [W] to Type No.	Radial Taping 	Ammunition Pack 	4,000 pcs per box (2.7φ body) (0.6φ lead)
WS Add Suffix [WS] to Type No.	Radial Taping (Applicable to AO Series) 	Ammunition Pack 	2,500 pcs per box (2.4φ body)
WK Add Suffix [WK] to Type No.	Radial Taping (Applicable to AO Series) 		

1 Small TMD



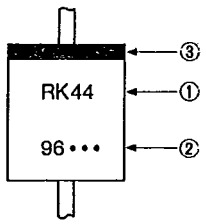
①Type Designation (in abbreviation)
AM01 is abbreviated as M.
②Class Designation
Z:200V, No Letter: 400V, A: 600V
③A:Year (Last Number of AD Year)
B:Month (Jan. to Sept. are represented by numbers 1 to 9 respectively, and Oct., Nov., and Dec. are abbreviated as O, N and D respectively)
④Cathode Band: Successive Band, however AU02 Type is Non-Successive Band.

2 E/EO Type TMD



①Type Designation (in abbreviation)
EM01 is abbreviated as MO, EM2 is abbreviated as M2.
②Class Designation
Z:200V, No Letter:400V, A:600V
B:800 V, C:1000V, F:1500V
However, EU02A to be marked 2A, and EU2YX to be marked Y.
③Abbreviations Representing Production Period
A:Year (Last Number of AD Year)
B:Month (1~9, 0, N, D)
④Production Period Divided in 3 ten day terms
• : 1st 10days •• : 2nd 10days ••• : 3rd 10days

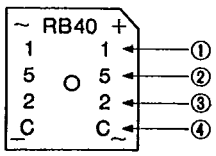
3 R Type TMD



①Type Designation:Mark in 2 sets
②Production Period:Mark in 4 sets
A:Year (Last Number of AD Year)
B:Month (1~9, 0, N, D)
③Production Period Divided in 3 ten day terms
• : 1st 10days •• : 2nd 10days ••• : 3rd 10days
④Cathode Band Color:Silver:For Power Supply
Yellow: For Middle Speed
Red : For High Speed and Ultra-High Speed

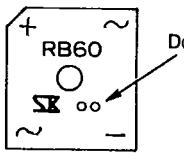
4 RB40/60

(RB40 Series)



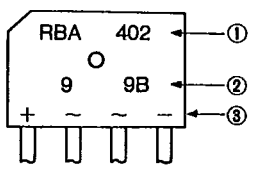
①Peak Reverse Voltage Designation
1, 2, 4, 6, C
Production Period
②Year (Last Number of AD Year)
③Month (1~9, 0, N, D)
④Divided in 3 ten day terms
A: 1st 10days, B: 2nd 10days
C: 3rd 10days
Color Designation: Silver

(RB60 Series)



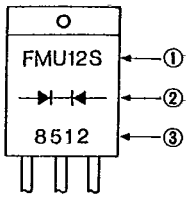
Dot Designation RB601 Violet
RB602 No Color
RB604 Blue
RB606 White

5 RBV/RBA



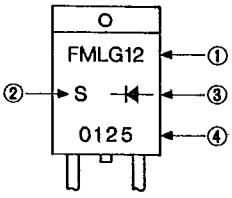
①Type Designation
②Lot Number
1st : Year (Last Number of AD Year)
2nd: Month (1~9, 0, N, D)
3rd : Divided 1~3 ten day Terms
A: 1st 10 days B: 2nd 10 days
C: 3rd 10 days
③In-Put Designation

6 TO220 Type (FM or CT Type)



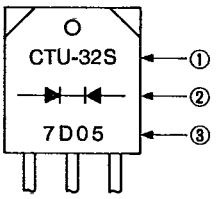
①Type Designation
Show FMU-12S as FMU12S.
②Polarity:Rectifier Symbols
③Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, 0, N, D)
3rd, 4th: Day

7 TO220 Type (FM or CT Type, single chip)



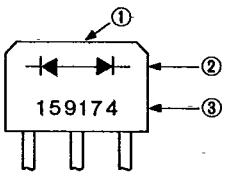
①Type Designation:Omit Last Letter
Show FML-G12S as FMLG12.
②Last Letter of Type Designation
③Polarity:Recitifier Symbols
④Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, 0, N, D)
3rd, 4th: Day

8 TO3P Type (FM or CT Type)



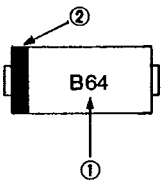
①Type shown in full designation
However, CTB-34/34S/34M are marked as CTB-34, CTU-G3DR is marked as CTUG3DR.
②Polarity:Rectifier Symbols
③Lot Number:
1) M, U, G and L Types
First Number : Last Digit of AD Year
Second Number : Month
Third and Fourth Numbers:Day
Fifth Number : None
2) For types CTB-34/34S/34M, the fifth letter shows type designation. If no fifth number, the type is CTB-33 or CTB-34.
3) Marking Color:Silver

9 MI-10/15 Type



①MI-10/15 is die-stamped on the top of the case.
②Rectifier Symbols
③Lot Number:
First Number (Letter) :Peak Reverse Voltage:
0=50V, 1=100V, 2=200V,
4=400V, 6=600V, C=1000V
Second Number :Last Digit of AD Year
Third Number :Month
Fourth and Fifth Numbers:Day
Sixth Number :Production number and U:Voltage Doubler Type

10 SFP Type



①Type Designation:
SFPB-64 is abbreviated at B64.
②Cathode Band