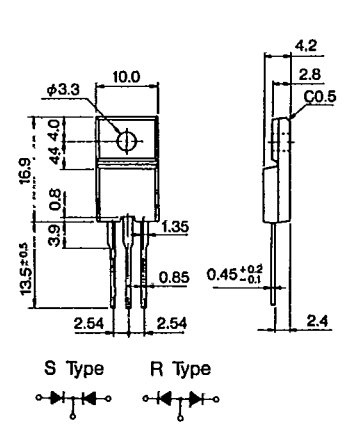
Ultra Fast Recovery Diodes VRM:100~600V Io:5.0~20A

FMG/FML

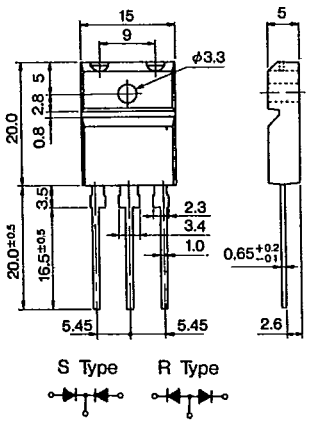
Rating/Characteristics / Type No.	Absolute Maximum Ratings VRSM (V) per chip	VRM (V)	Io (A) With Fin	IFSM (A) 50Hz Sine Half Wave Single Pulse 10ms.	Tj (°C)	Tstg (°C)	Electrical Characteristics (Ta=25°C) VF (V) Max. per chip	VF IF (A)	IR (mA) VR=VRM max (per chip)	IR(H) (mA) VR=VRM, Tj=150°C max (per chip)	trr (μs)	trr IF/IRP (mA)	Others Outline Drawing	Weight(g)	Taping	Note
FMG-11S, R	100	100	5.0	35	−40~+150		1.3	2.5	0.5	1.5	0.1	100/100	⑫	2.1	—	For High Frequency Rectification
FMG-12S, R	200	200					1.8									
FMG-13S, R	300	300														
FMG-14S, R	400	400					2.0									
FMG-21S, R	100	100	10	65			1.3	5.0		2.5			⑫	2.1		
FMG-22S, R	200	200					1.8									
FMG-23S, R	300	300														
FMG-24S, R	400	400	8.0				2.0									
FMG-26S, R	600	600	6.0	50			2.2	3.0		3.0						
FMG-31S, R	100	100	20	150			1.3	10	1.0	5.0			⑬	5.5		
FMG-32S, R	200	200					1.8									
FMG-33S, R	300	300														
FMG-34S, R	400	400	16	100			2.0									
FMG-36S, R	600	600	15	80			2.2	7.5								
FMG-G26S	600	600	4.0	50			2.5	4.0	0.5	3.0			⑭	2.1		
FMG-G36S	600	600	8.0	80				8.0				500/500	⑮	5.5		
FML-11S	100	100	5.0	35			0.98	2.5	0.15	0.5	0.04	100/100	⑫	2.1		
FML-12S	200	200														
FML-13S	300	300		40			1.3		0.05	0.25	0.05					
FML-14S	400	400								0.1						
FML-21S	100	100	10	65			0.98	5.0	0.25	1.0	0.04					
FML-22S	200	200														
FML-23S	300	300		70			1.3		0.1	0.5	0.05					
FML-24S	400	400								0.2						
FML-31S	100	100	20	150			0.98	10	0.6	2.0	0.04		⑬	5.5		
FML-32S	200	200														
FML-33S	300	300		100			1.3		0.2	1.0	0.05	500/500				
FML-34S	400	400								0.4						
FML-G12S	200	200	5.0	65			0.98	5.0	0.25	1.0	0.04	100/100	⑭	2.1		
FML-G13S	300	300		70			1.3		0.1	0.2	0.05					
FML-G14S	400	400											⑭			
FML-G16S	600	600		50			1.5			0.5		500/500				
FML-G22S	200	200	10	150			0.98	10	0.5	2.0	0.04	100/100	⑭			

Therminal Resistance Rth(j-c)max : 4.2°C/W (FMG-G26S)
2.1°C/W (FMG-G36S)

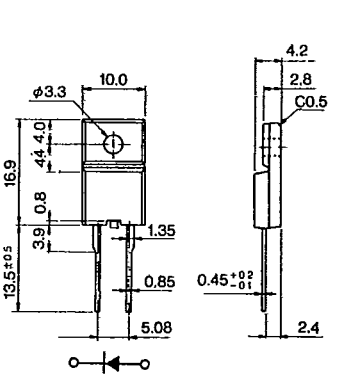
Outline Drawing ⑫



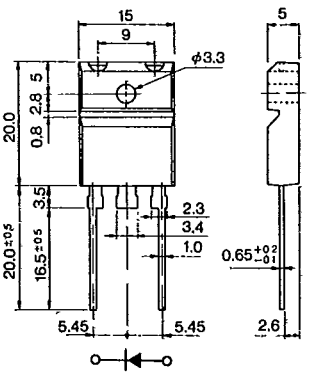
Outline Drawing ⑬



Outline Drawing ⑭

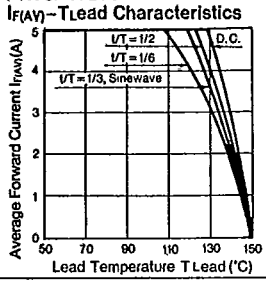


Outline Drawing ⑮

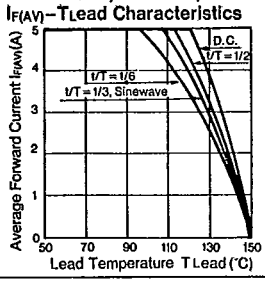


⑫~⑮ Plastic Molded, Flammability : UL94V-0 or Equivalent

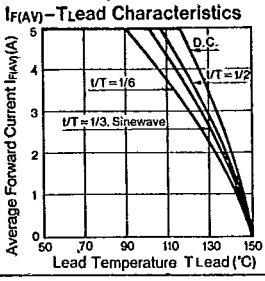
FMG-11SR
$I_{F(AV)}$–T_{Lead} Characteristics



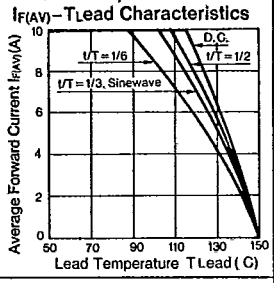
FMG-12S, R/13S, R
$I_{F(AV)}$–T_{Lead} Characteristics



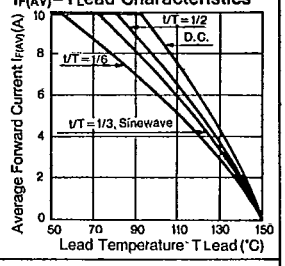
FMG-14S, R
$I_{F(AV)}$–T_{Lead} Characteristics



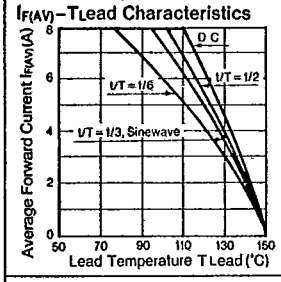
FMG-21S, R
$I_{F(AV)}$–T_{Lead} Characteristics



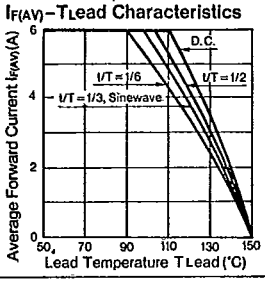
FMG-22S, R/23S, R
$I_{F(AV)}$–T_{Lead} Characteristics



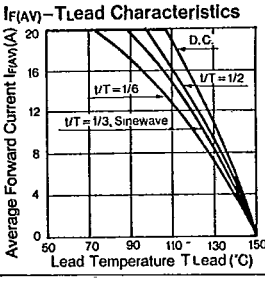
FMG-24S, R
$I_{F(AV)}$–T_{Lead} Characteristics



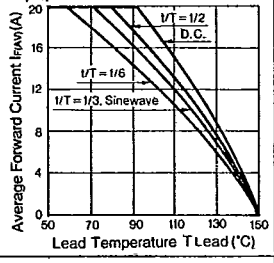
FMG-26S, R
$I_{F(AV)}$–T_{Lead} Characteristics



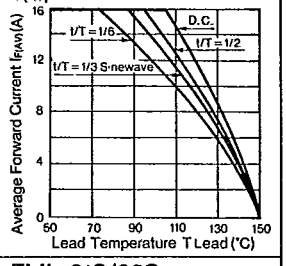
FMG-31S, R
$I_{F(AV)}$–T_{Lead} Characteristics



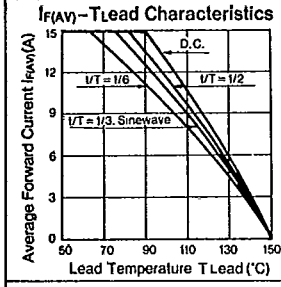
FMG-32S, R/33S, R
$I_{F(AV)}$–T_{Lead} Characteristics



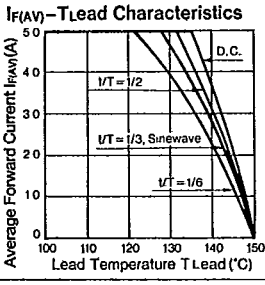
FMG-34S, R
$I_{F(AV)}$–T_{Lead} Characteristics



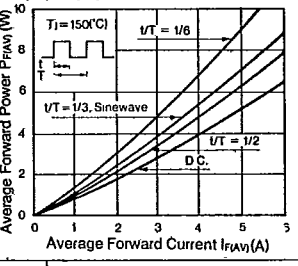
FMG-36S.R
$I_{F(AV)}$–T_{Lead} Characteristics



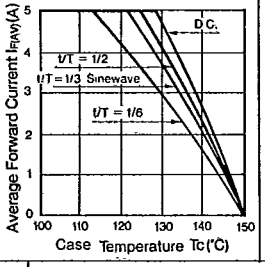
FML-11S/12S
$I_{F(AV)}$–T_{Lead} Characteristics



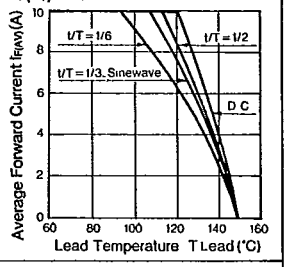
FML-13S
$P_{F(AV)}$–$I_{F(AV)}$ Characteristics



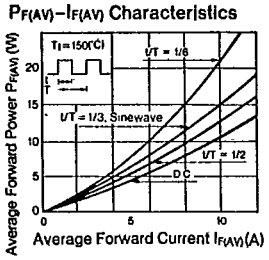
$I_{F(AV)}$–T_C Deratings



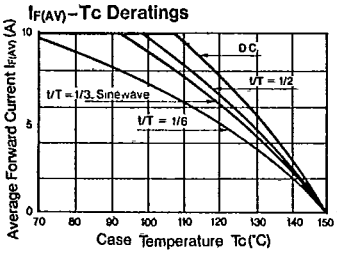
FML-21S/22S
$I_{F(AV)}$–T_{Lead} Characteristics



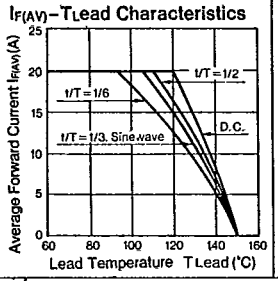
FML-23S
$P_{F(AV)}$–$I_{F(AV)}$ Characteristics



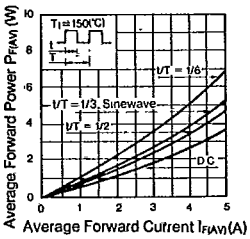
$I_{F(AV)}$–T_C Deratings



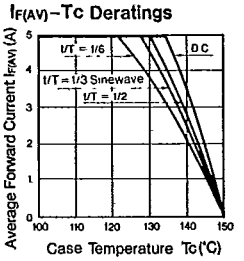
FML-31S/32S
$I_{F(AV)}$–T_{Lead} Characteristics



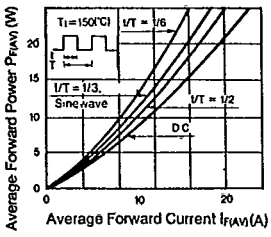
FML-G12S
$P_{F(AV)}$–$I_{F(AV)}$ Characteristics



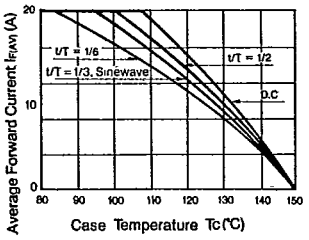
$I_{F(AV)}$–T_C Deratings



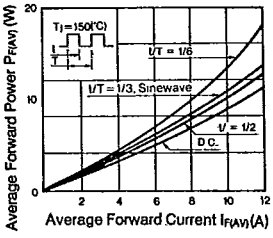
FML-33S
$P_{W(AV)}$–$I_{F(AV)}$ Characteristics



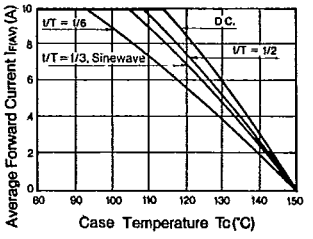
$I_{F(AV)}$–T_C Deratings



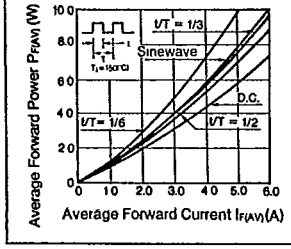
FML-G22S
$P_{F(AV)}$–$I_{F(AV)}$ Characteristics



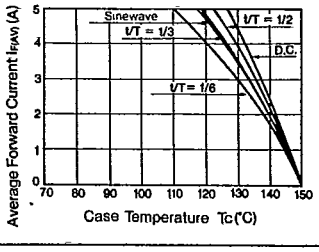
$I_{F(AV)}$–T_C Deratings



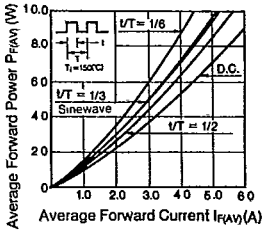
FML-G13S/G14S
$P_{F(AV)}$–$I_{F(AV)}$ Characteristics



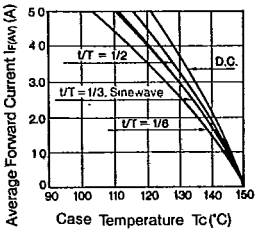
$I_{F(AV)}$–T_C Deratings



FML-G16S
$P_{F(AV)}$–$I_{F(AV)}$ Characteristics



$I_{F(AV)}$–T_C Deratings



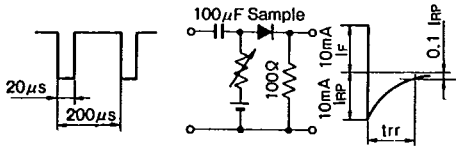
Symbols/trr Measurement Circuit

Symbols

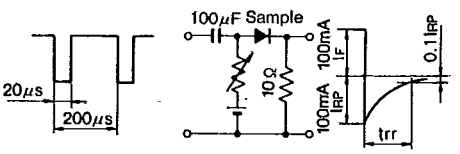
V_{RSM}	Peak Reverse Surge Voltage	I_{RSM}	Peak Reverse Surge Current	Tstg	Storage Temperature
V_{RM}	Peak Reverse Voltage	I_R	Reverse Current	trr	Reverse Recovery Time
V_{P-P}	Reverse Voltage (Peak to Peak)	I_{RP}	Peak Reverse Current	Ct	Total Capacitance Between Terminals
V_R	Reverse Voltage	$I_{R(H)}$	Reverse Current (High Temperature)	Rth(j-c)	Thermal Resistance, Junction to Case
V_F	Forward Voltage	Iz	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

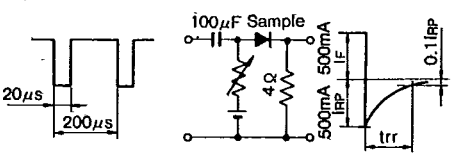
① $I_F = I_{RP} = 10mA$ to $1mA$



② $I_F = I_{RP} = 100mA$ to $10mA$

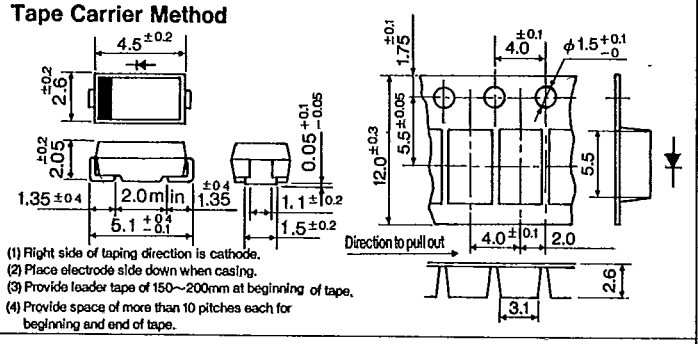
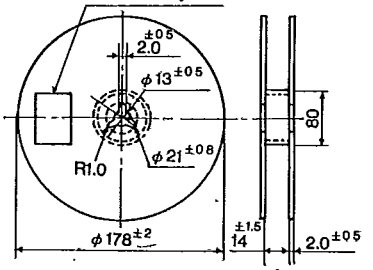
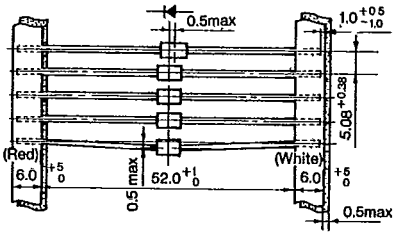
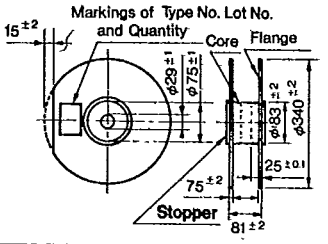


③ $I_F = I_{RP} = 500mA$ to $50mA$

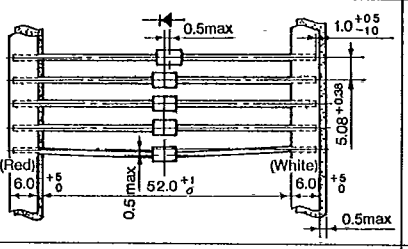
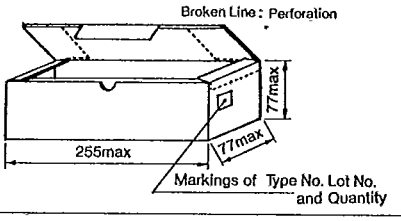
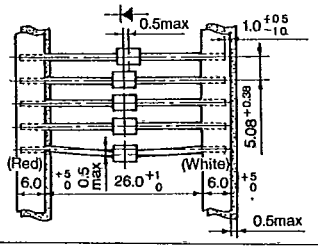
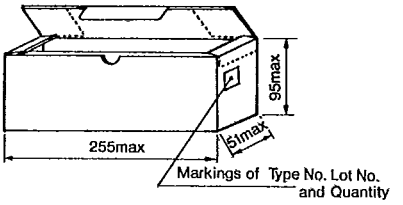
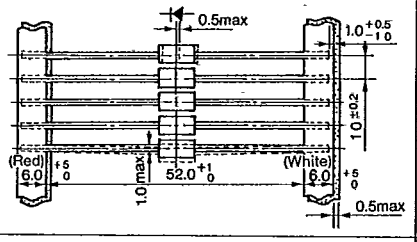
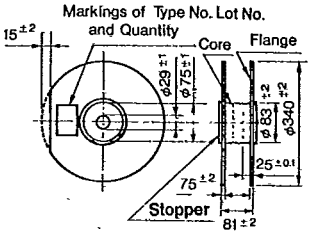
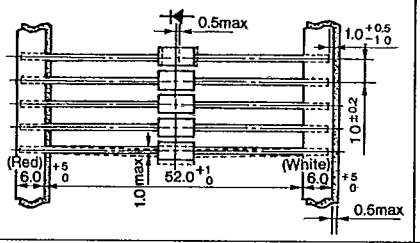
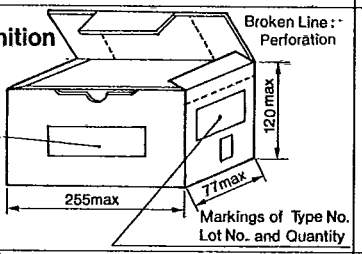
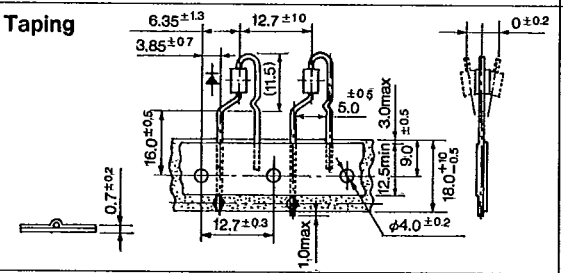
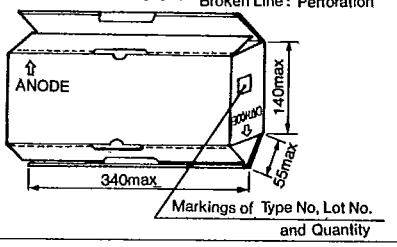
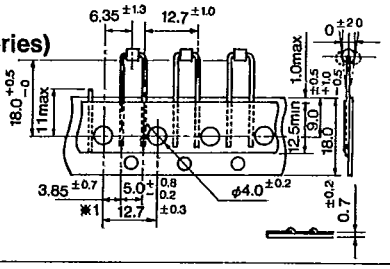
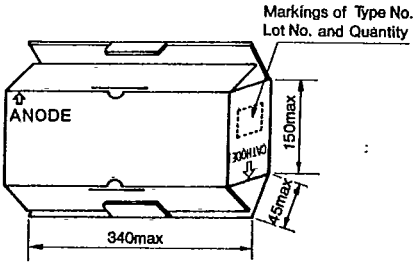
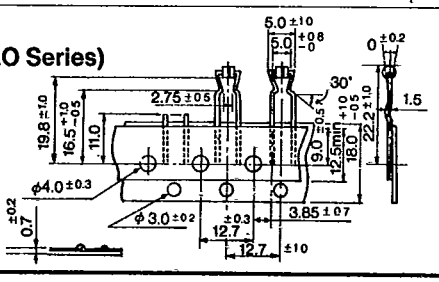


Taping Specifications

Excluding High Voltage Diodes

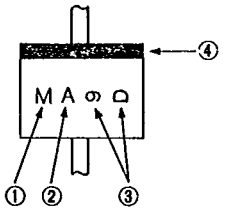
Designation	Dimension (in mm)	Packaging Dimension and Marking	Quantity
V Add Suffix [V] to Type No.	**Tape Carrier Method**  (1) Right side of taping direction is cathode. (2) Place electrode side down when casing. (3) Provide leader tape of 150~200mm at beginning of tape. (4) Provide space of more than 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** Markings of Type No. Lot No. and Quantity 	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 (2.7 ϕ body) 1,000 pcs per box (4.0 ϕ body)
VO Add Suffix [VO] to Type No.	Axial Taping 	Ammunition Pack 	2,000 pcs per box (2.7 ϕ body) (2.4 ϕ body)
V3 Add Suffix [V3] to Type No.	Axial Taping 	Reel 	1,500 pcs per reel (5.2 ϕ body)
V4 Add Suffix [V4] to Type No.	Axial Taping 	Ammunition Pack 	1,000 pcs per box (5.2 ϕ body)
W Add Suffix [W] to Type No.	Radial Taping 	Ammunition Pack 	4,000 pcs per box (2.7 ϕ body) (0.6 ϕ lead)
WS Add Suffix [WS] to Type No.	Radial Taping (Applicable to AO Series) 	Ammunition Pack 	2,500 pcs per box (2.4 ϕ body)
WK Add Suffix [WK] to Type No.	Radial Taping (Applicable to AO Series) 		

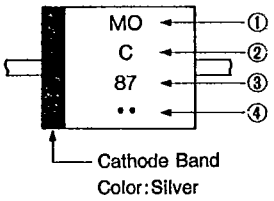
Marking Guide

1 Small TMD



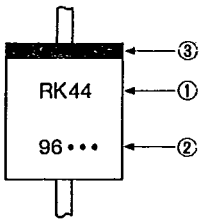
①Type Designation (in abbreviation)
AM01 is abbreviated as M.
②Class Designation
Z:200V, No Letter: 400V, A: 600V
③A:Year (Last Number of AD Year)
B:Month (Jan. to Sept. are represented by numbers 1 to 9 respectively, and Oct., Nov., and Dec. are abbreviated as O, N and D respectively)
④Cathode Band: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

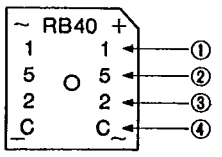
3 R Type TMD



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

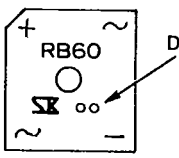
4 RB40/60

(RB40 Series)



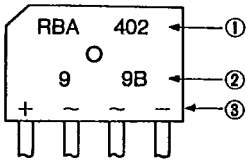
①Peak Reverse Voltage Designation
1, 2, 4, 6, C
Production Period
②Year (Last Number of AD Year)
③Month (1~9, 0, N, D)
④Divided in 3 ten day terms
A: 1st 10days, B: 2nd 10days
C: 3rd 10days
Color Designation: Silver

(RB60 Series)



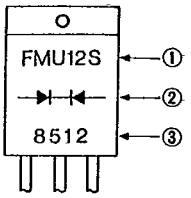
Dot Designation RB601 Violet
RB602 No Color
RB604 Blue
RB606 White

5 RBV/RBA



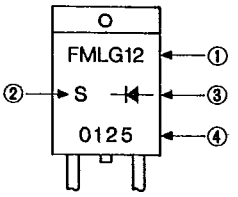
①Type Designation
②Lot Number
1st : Year (Last Number of AD Year)
2nd: Month (1~9, 0, N, D)
3rd : Divided 1~3 ten day Terms
A: 1st 10 days B: 2nd 10 days
C: 3rd 10 days
③In-Put Designation

6 TO220 Type (FM or CT Type)



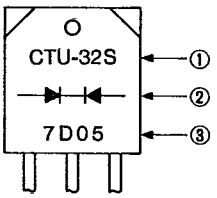
①Type Designation
Show FMU-12S as FMU12S.
②Polarity:Rectifier Symbols
③Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, 0, N, D)
3rd, 4th: Day

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



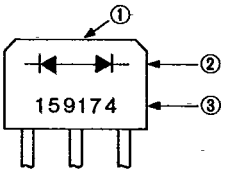
①Type Designation:Omit Last Letter
Show FML-G12S as FMLG12.
②Last Letter of Type Designation
③Polarity:Recitifier Symbols
④Lot Number (Laser Marking)
1st : Year (Last Number of AD Year)
2nd : Month (0~9, 0, N, D)
3rd, 4th: Day

8 TO3P Type (FM or CT Type)



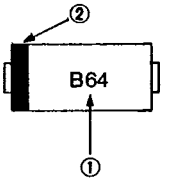
①Type shown in full designation
However, CTB-34/34S/34M are marked as CTB-34, CTU-G3DR is marked as CTUG3DR.
②Polarity:Rectifier Symbols
③Lot Number:
1) M, U, G and L Types
First Number : Last Digit of AD Year
Second Number : Month
Third and Fourth Numbers:Day
Fifth Number : None
2) For types CTB-34/34S/34M, 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