AUK Semiconductor

SF20A300HPI

Ultra Fast Recovery Diode

Applications

- High speed switching and rectification
- Switching mode power supply

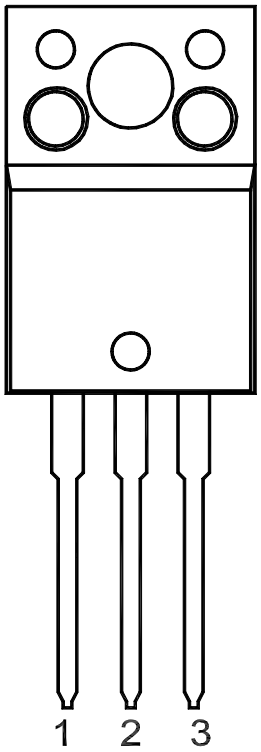
Features

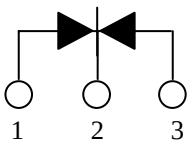
- Ultra-fast reverse recovery time: t_{rr}=35ns Max.
- Low forward voltage & low reverse current
- Low switching loss

Ordering Information

Type No.	Marking	Package Code
SF20A300HPI	SF20A300HPI	TO-220F-3L

PIN Connections





1. Anode
2. Cathode
3. Anode

Absolute Maximum Ratings

[Ta=25°C]

Characteristic	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	300	V
Average rectified output current	I_O	20	A
Peak forward surge current (Non-repetitive 60Hz sine wave)	I_{FSM}	120	A
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-45 ~ 150	°C

Electrical Characteristics

[Ta=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak forward voltage	V_{FM} 1)	I_F=10A 2)	-	-	1.3	V
Repetitive peak reverse current	I_{RRM} 1)	V_R=300V 2)	-	-	20	μA
Reverse recovery time	t_{rr} 1)	I_F=1A, di/dt=-100A/μs	-	-	35	ns
Thermal resistance	R_{th}	Junction to case	-	-	4	°C/W

1) Per Diode

2) Pulse test : $t_p \leq 380$ μs, Duty cycle ≤ 2%

Electrical Characteristic Curves

Fig. 1 V_F - I_F (Per Diode)

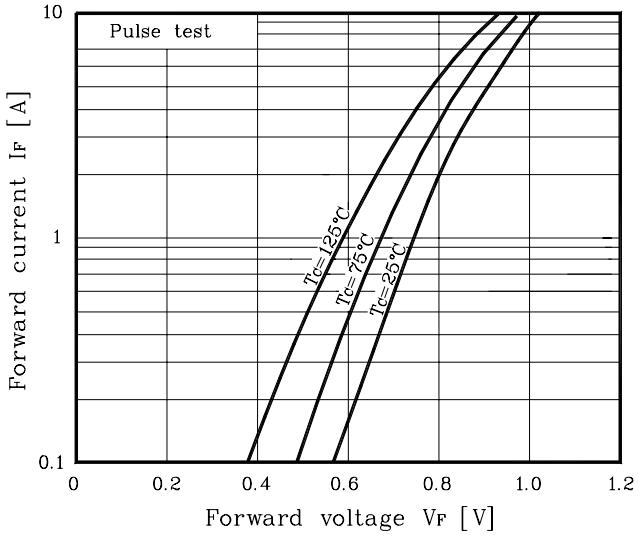


Fig. 2 I_R - V_R (Per Diode)

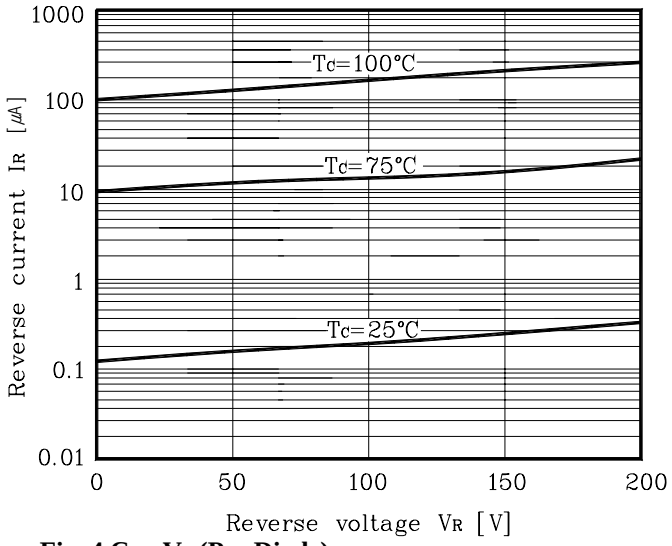


Fig. 3 I_O – P_F (Per Diode)

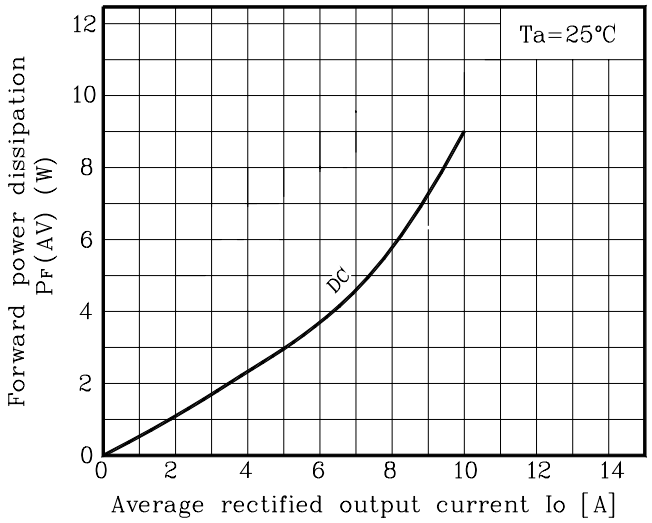


Fig. 4 C_T - V_R (Per Diode)

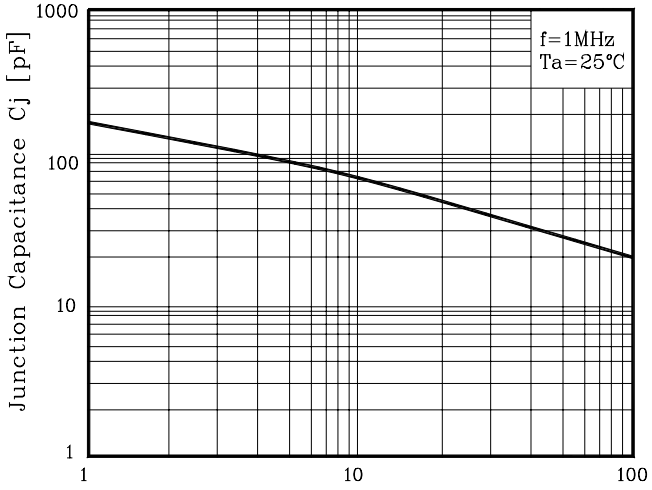


Fig. 5 I_{FSM} – Number of cycle (Total)

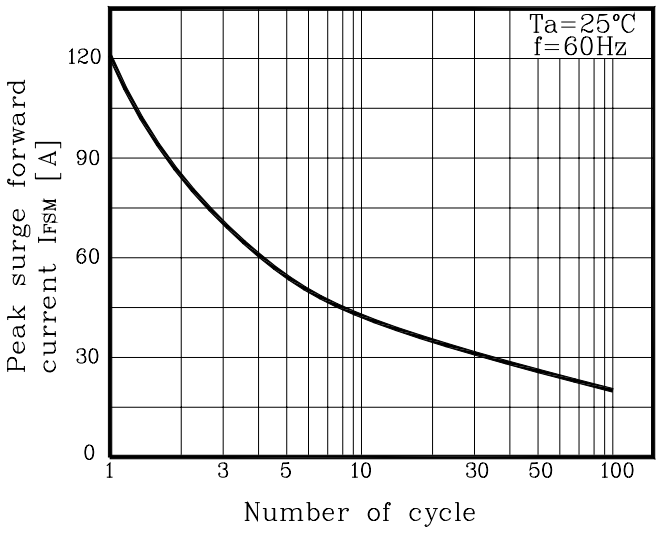
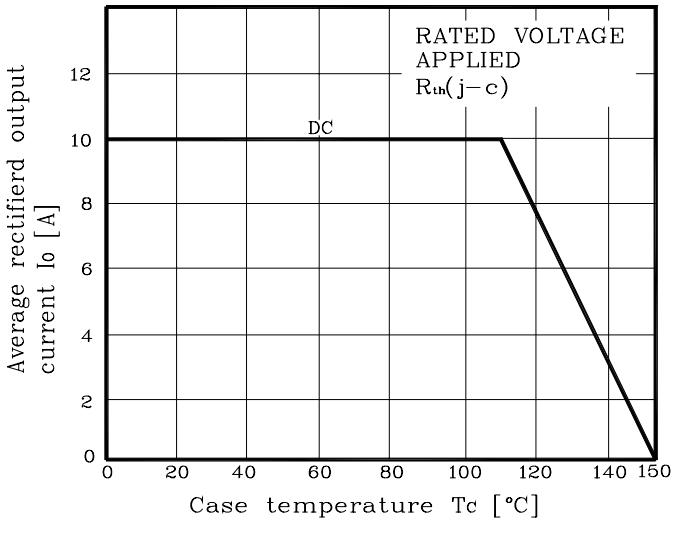
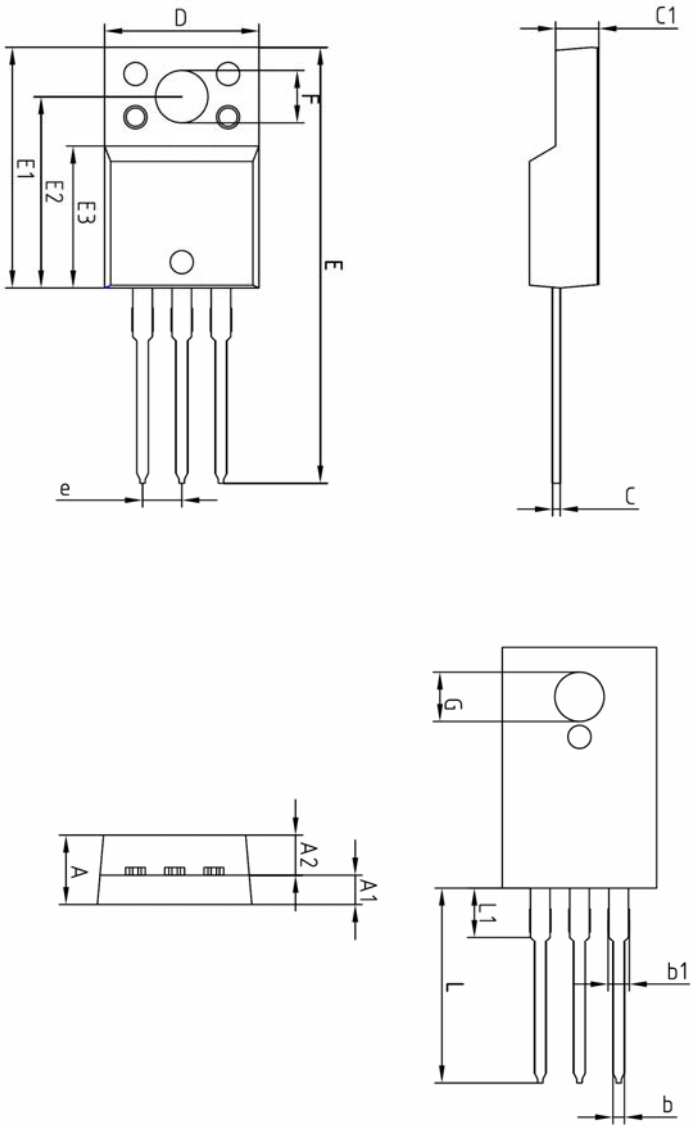


Fig. 6 I_O derating - T_C (Per Diode)



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			

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AUK Semiconductor

SF10A200HPI

Ultra Fast Recovery Diode

Applications

- High speed switching and rectification
- Switching mode power supply

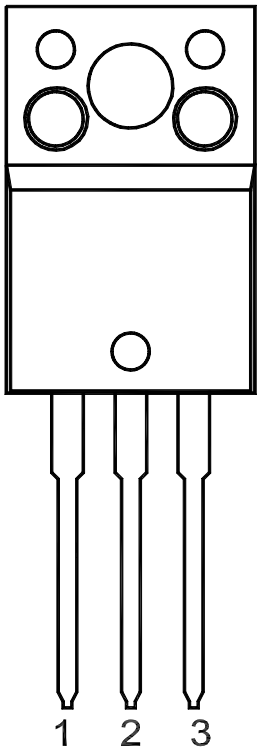
Features

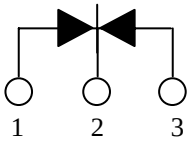
- Ultra-fast reverse recovery time: t_{rr}=30ns Max.
- Low forward voltage & low reverse current: V_{FM}=0.98V, I_{RRM}=10 μA
- Low switching loss

Ordering Information

Type No.	Marking	Package Code
SF10A200HPI	SF10A200HPI	TO-220F-3L

PIN Connections





1. Anode
2. Cathode
3. Anode

Absolute Maximum Ratings

[Ta=25°C]

Characteristic	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	200	V
Average rectified output current	I_O	10	A
Peak forward surge current (Non-repetitive 60Hz sine wave)	I_{FSM}	60	A
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-45 ~ 150	°C

Electrical Characteristics

[Ta=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak forward voltage	V_{FM} 1)	I_F=5A 2)	-	-	0.98	V
Repetitive peak reverse current	I_{RRM} 1)	V_R=200V 2)	-	-	10	μA
Reverse recovery time	t_{rr} 1)	I_F=1A, di/dt=-100A/μs	-	-	30	ns
Thermal resistance	R_{th} 1)	Junction to case	-	-	4	°C/W

1) Per Diode

2) Pulse test : $t_p \leq 380$ μs, Duty cycle $\leq 2\%$

Electrical Characteristic Curves [per each unit]

Fig. 1 V_F - I_F (Per Diode)

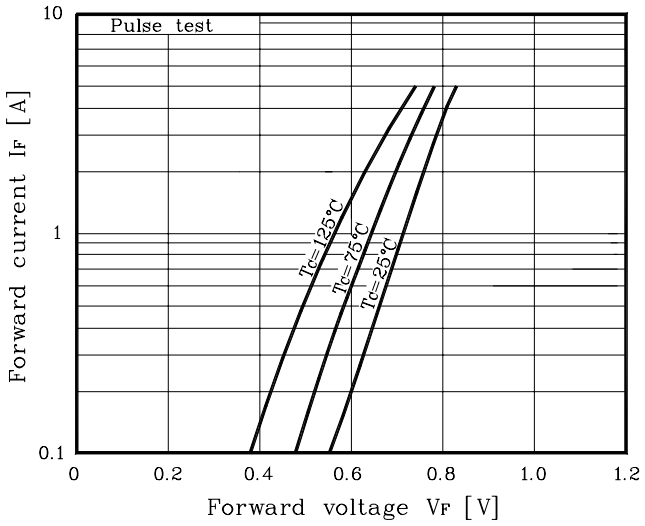


Fig. 2 I_R - V_R (Per Diode)

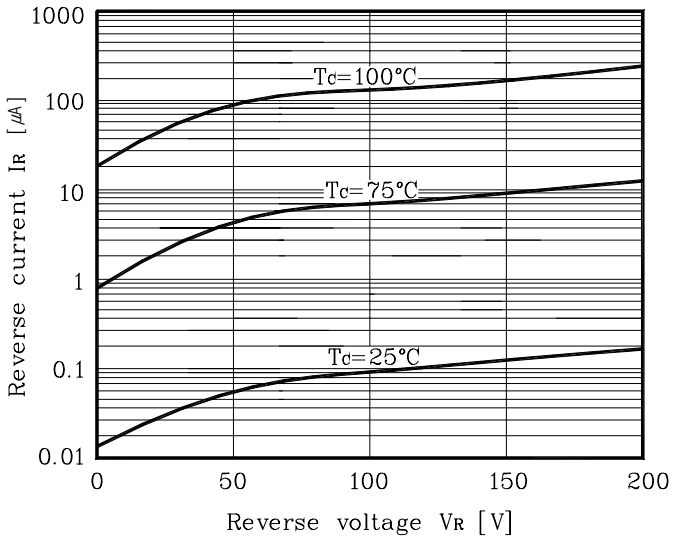


Fig. 3 I_O – P_F (Per Diode)

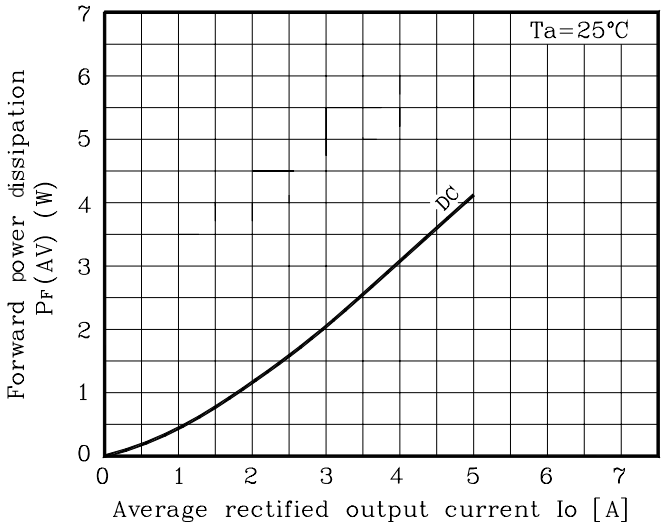


Fig. 4 C_T - V_R (Per Diode)

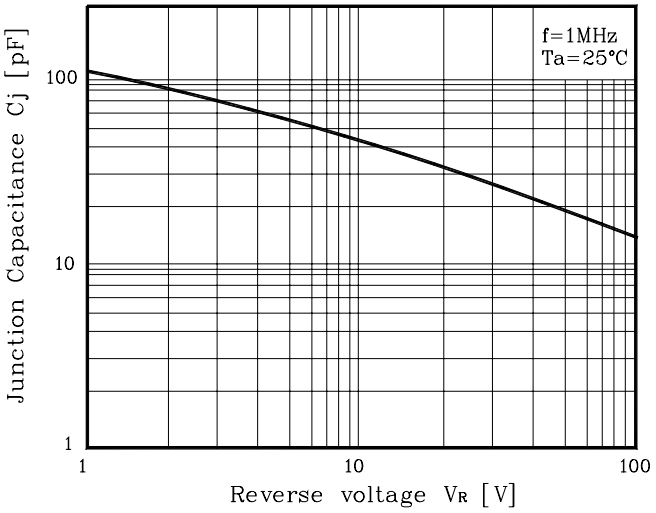


Fig. 5 I_{FSM} – Number of cycle (Total)

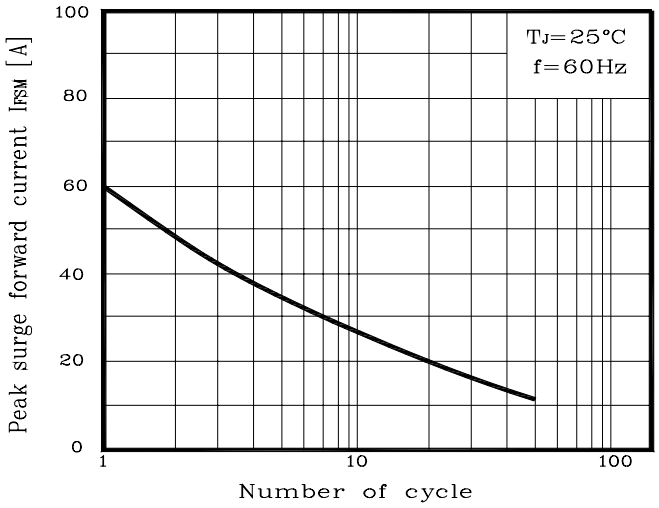
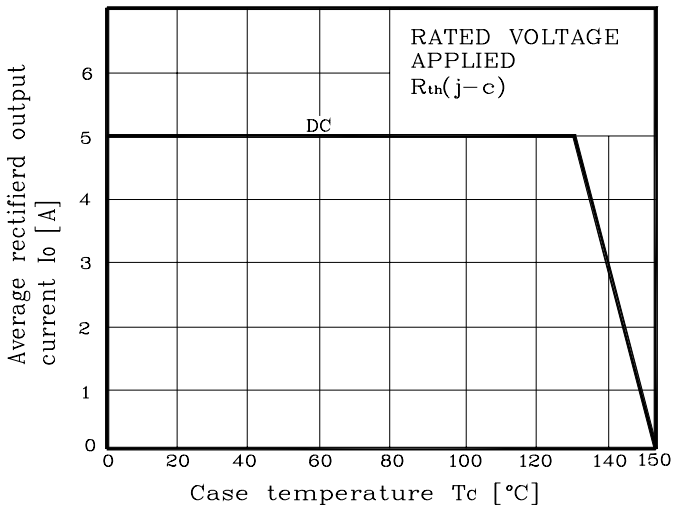
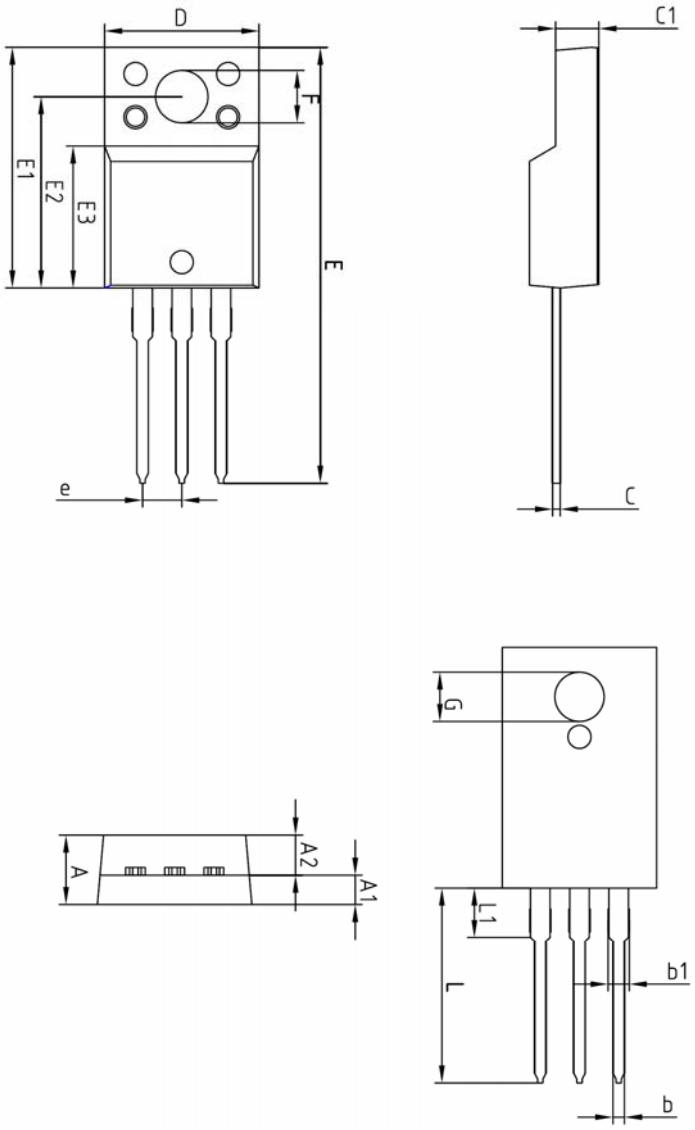


Fig. 6 I_O derating - T_C



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			

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AUK Semiconductor

SF10A300H

Ultra Fast Recovery Diode

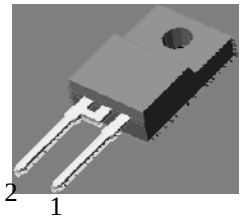
Applications

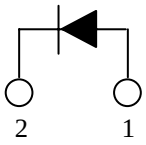
- High speed switching and rectification
- Switching mode power supply

Features

- Ultra-fast reverse recovery time: t_{rr}=30ns Max.
- Low forward voltage & low reverse current
- Low switching loss

PIN Connection





1. Anode
2. Cathode

TO-220F-2L

Ordering Information

Type No.	Marking	Package Code
SF10A300H	SF10A300H	TO-220F-2L

Absolute Maximum Ratings

[Tc=25°C]

Characteristic	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	300	V
Average rectified output current	I_O	10	A
Peak forward surge current (Non-repetitive 60Hz sine wave)	I_{FSM}	120	A
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-45 ~ 150	°C

Electrical Characteristics

[Tc=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak forward voltage	V_{FM}	I_F=10A 1)	-	-	1.3	V
Repetitive peak reverse current	I_{RRM}	V_R=300V 1)	-	-	20	μA
Reverse recovery time	t_{rr} 1)	I_F=1A, di/dt=-100A/μs	-	-	30	ns
Thermal resistance	R_{th}	Junction to case	-	-	4	°C/W

1) Pulse test : $t_p \leq 380$ μs, Duty cycle ≤ 2%

Electrical Characteristic Curves

Fig. 1 I_F - V_F

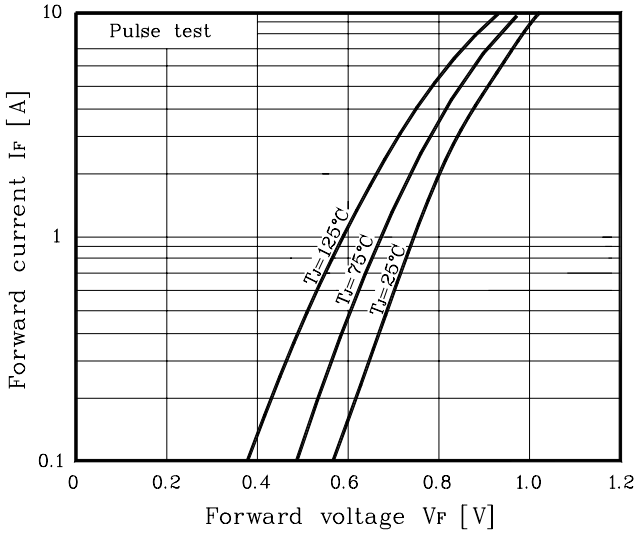


Fig. 2 I_R - V_R

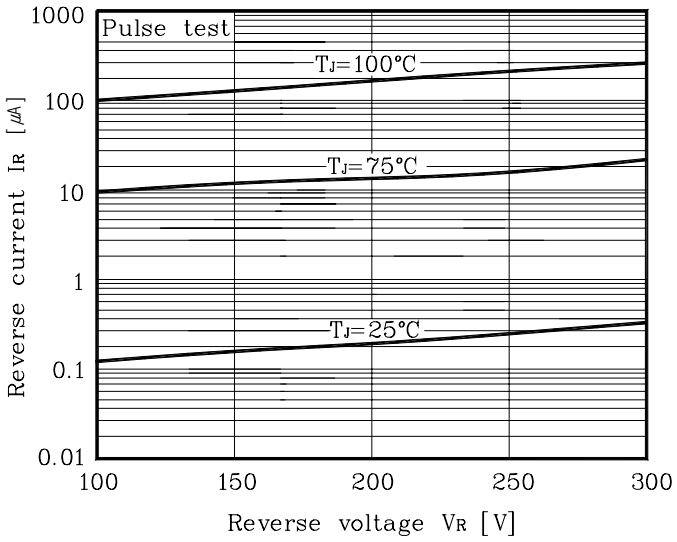


Fig. 3 I_O – P_F

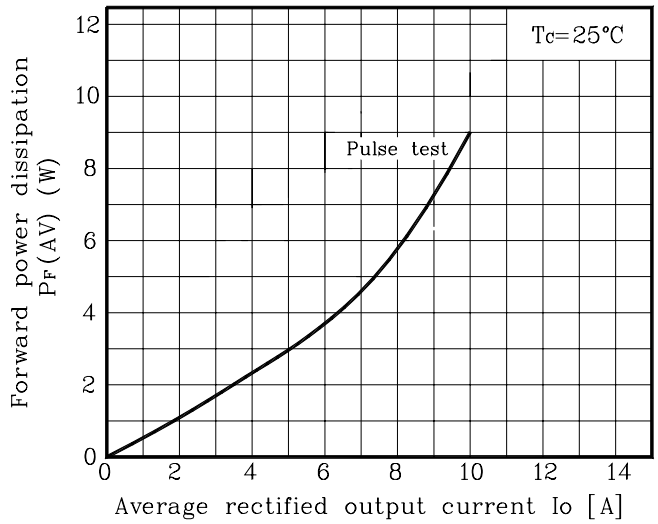


Fig. 4 C_T - V_R

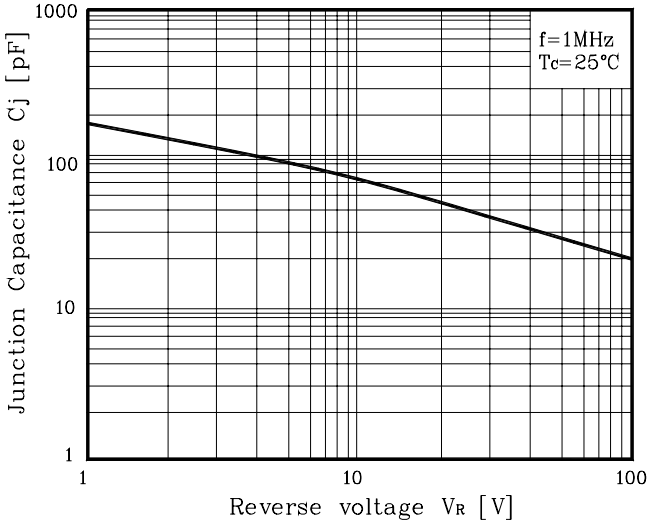


Fig. 5 I_{FSM} – Number of cycle

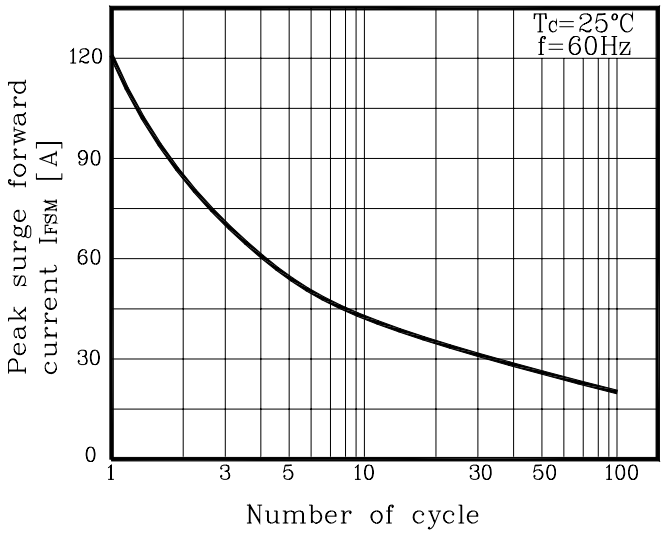
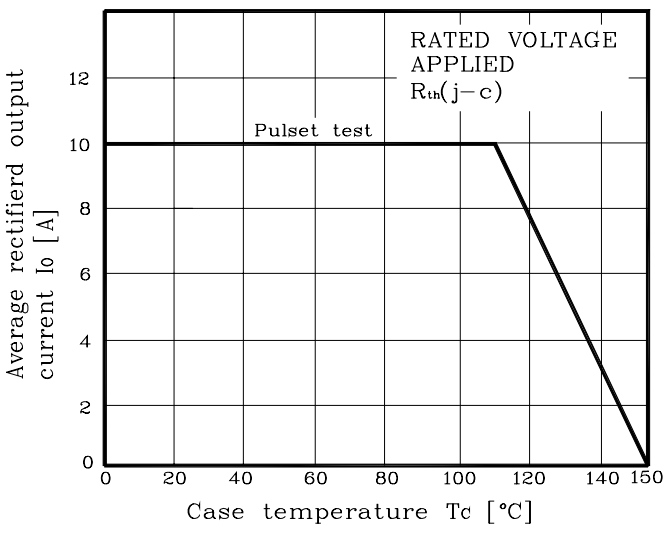
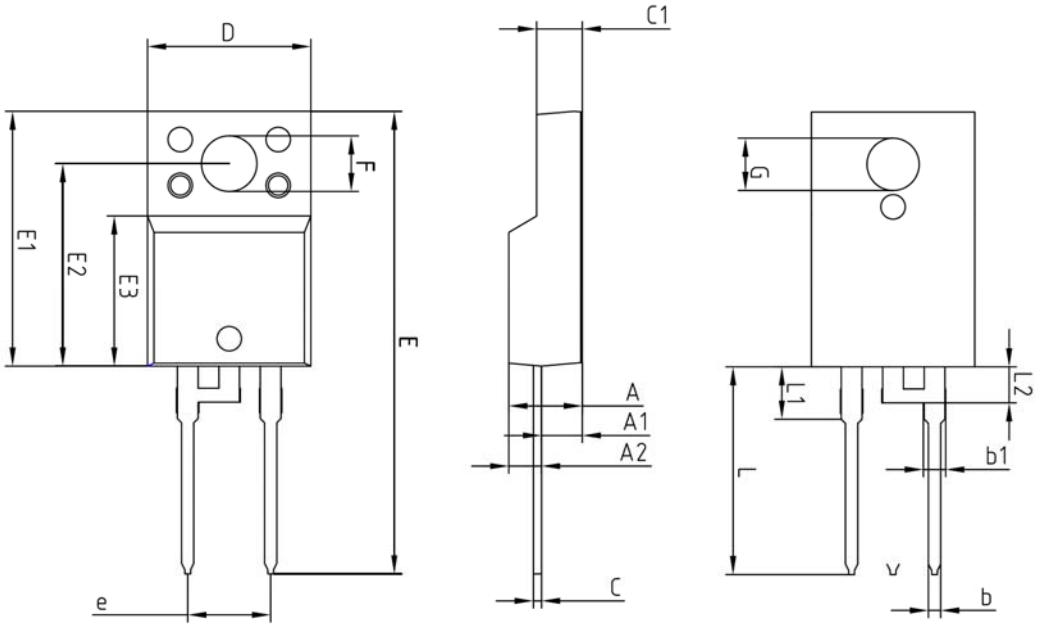


Fig. 6 I_O derating - T_C



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	5.08 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			
L2	2.21 BSC			

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AUK Semiconductor

SF10A400H

Ultra Fast Recovery Diode

Applications

- High speed switching and rectification
- Switching mode power supply

Features

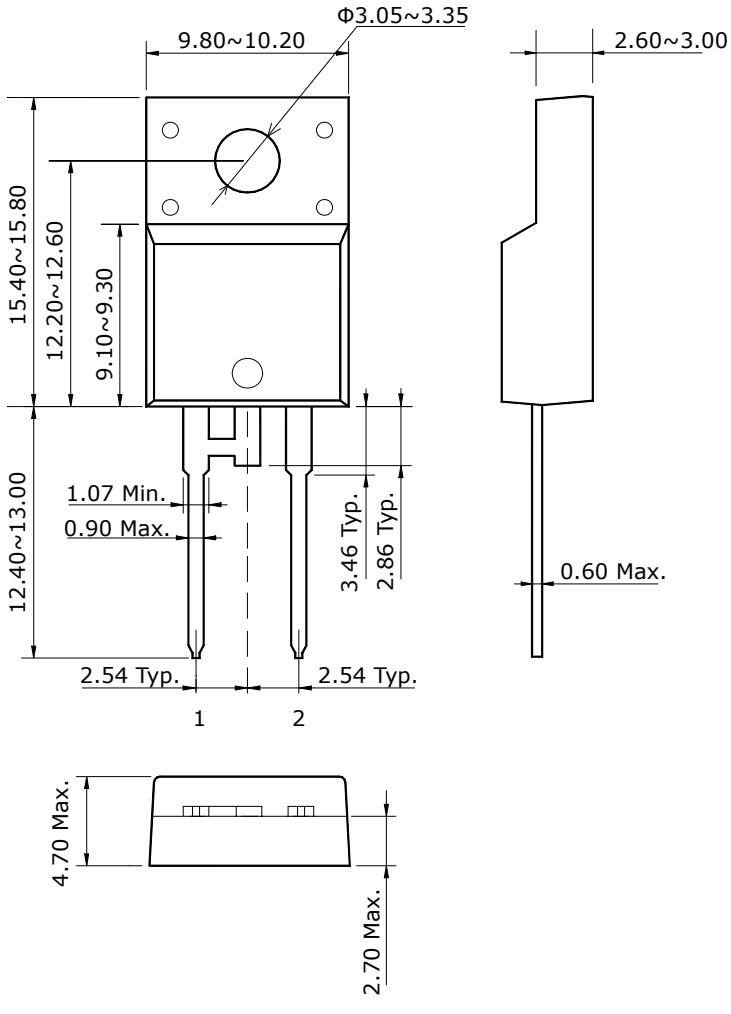
- Ultra-fast reverse recovery time: t_{rr}=50ns Max.
- Low forward voltage & low reverse current
- Low switching loss

Ordering Information

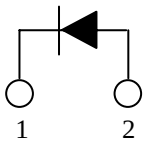
Type No.	Marking	Package Code
SF10A400H	SF10A400H	TO-220F-2L

Outline Dimensions

unit : mm



● **PIN Connections**



1. Cathode
2. Anode

Absolute Maximum Ratings

[Ta=25°C]

Characteristic	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	400	V
Average rectified output current	I_O	10	A
Peak forward surge current (Non-repetitive 60Hz sine wave)	I_{FSM}	120	A
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-45 ~ 150	°C

Electrical Characteristics

[Ta=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak forward voltage	V_{FM} 1)	I_F=10A	-	-	1.4	V
Repetitive peak reverse current	I_{RRM}	V_R=400V	-	-	20	μA
Reverse recovery time	t_{rr}	I_F=1A, di/dt=100A/μs	-	-	50	ns
Total capacitance	C_T	VR=10V, f=1MHz	-	65	-	pF
Thermal resistance	R_{th}	Junction to ambient	-	-	62.5	°C/W
		Junction to case	-	-	3.5	

1) Pulse test : $t_p \leq 380$ μs, Duty cycle ≤ 2%

Electrical Characteristic Curves

Fig.1 I_F - V_F

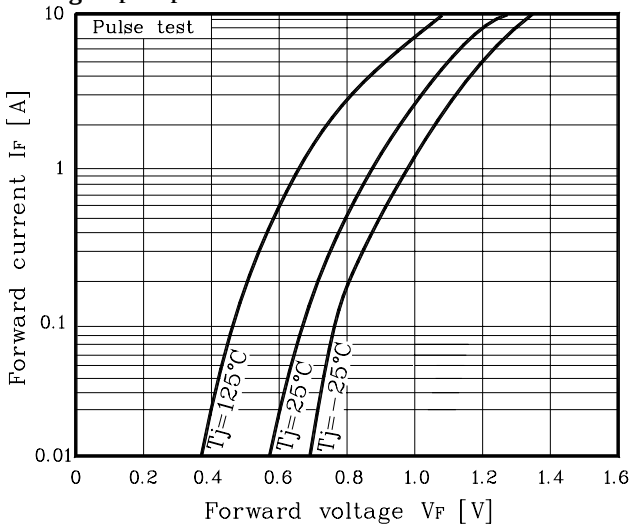


Fig. 2 I_R - V_R

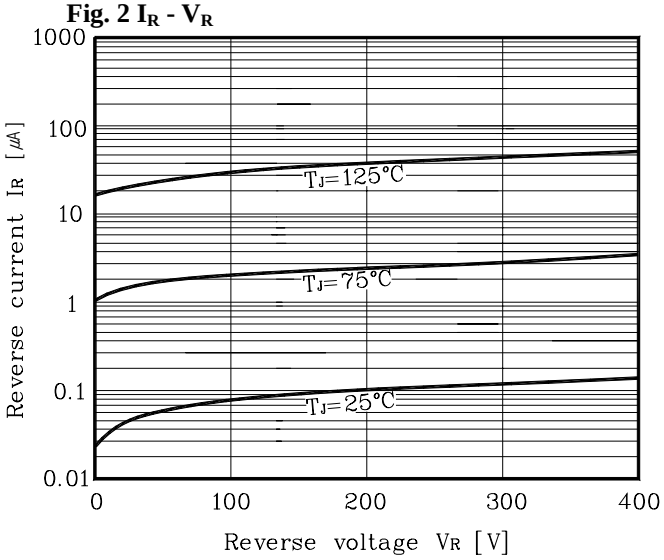


Fig. 3 P_F - I_O

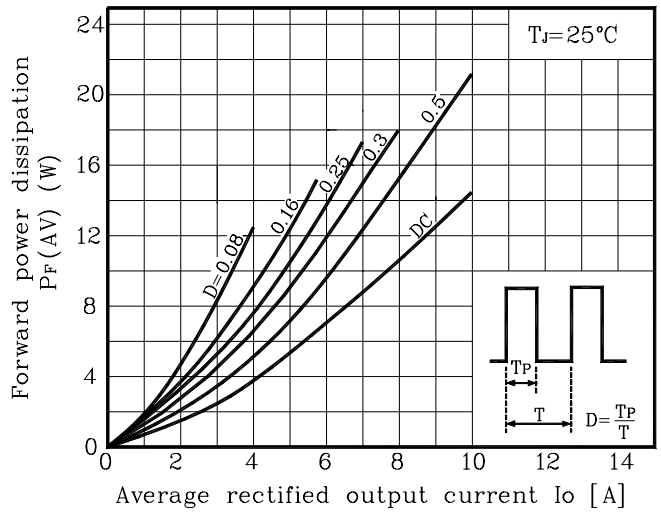


Fig. 4 C_T - V_R

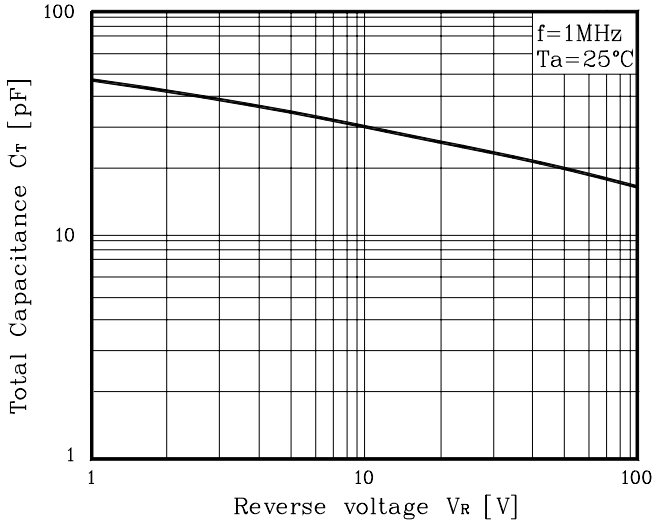


Fig. 5 I_{FSM} – Number of cycle

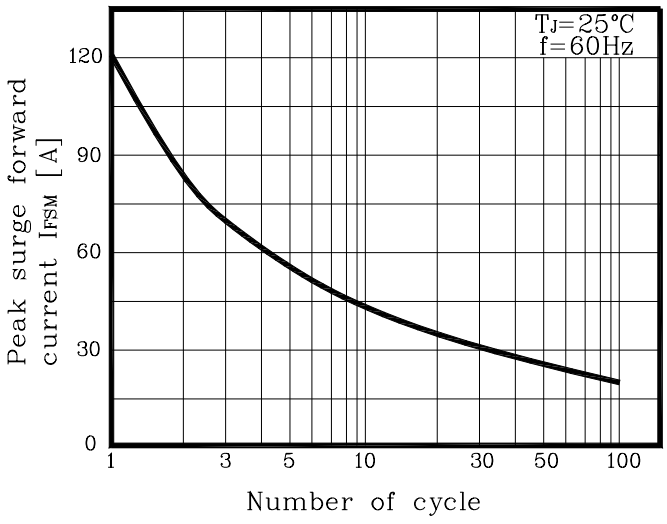
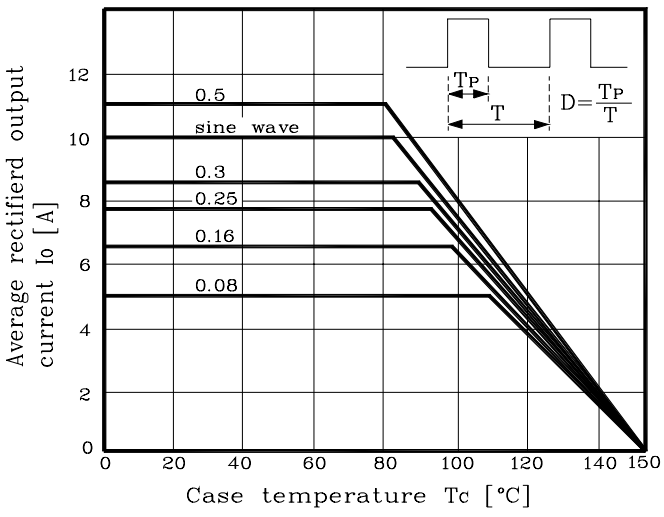


Fig. 6 I_O derating - T_C



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AUK Semiconductor

SF10A600H

Ultra Fast Recovery Diode

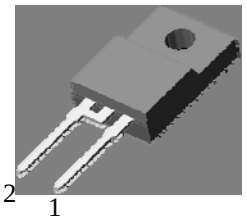
Applications

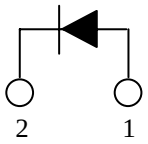
- High speed switching and rectification
- Switching mode power supply
- Free wheeling diode and snubber circuit

Features

- Ultra-fast reverse recovery time: trr=35ns Max.
- Low forward voltage & low reverse current
- Low switching loss

PIN Connection





1. Anode
2. Cathode

TO-220F-2L

Ordering Information

Type No.	Marking	Package Code
SF10A600H	SF10A600H	TO-220F-2L

Absolute Maximum Ratings

[Ta=25°C]

Characteristic	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	600	V
Average rectified output current	I_O	10	A
Peak forward surge current (Non-repetitive 60Hz sine wave)	I_{FSM}	100	A
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-45 ~ 150	°C

Electrical Characteristics

[Ta=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak forward voltage	V_{FM} 1)	I_F=10A	-	-	1.9	V
Repetitive peak reverse current	I_{RRM}	V_R=600V	-	-	20	μA
Reverse recovery time	t_{rr}	I_F=1A, di/dt=-100A/μs	-	-	35	ns
Thermal resistance	R_{th}	Junction to case	-	-	4.0	°C/W

1) Pulse test : $t_p \leq 380$ μs, Duty cycle ≤ 2%

Electrical Characteristic Curves

Fig.1 I_F - V_F

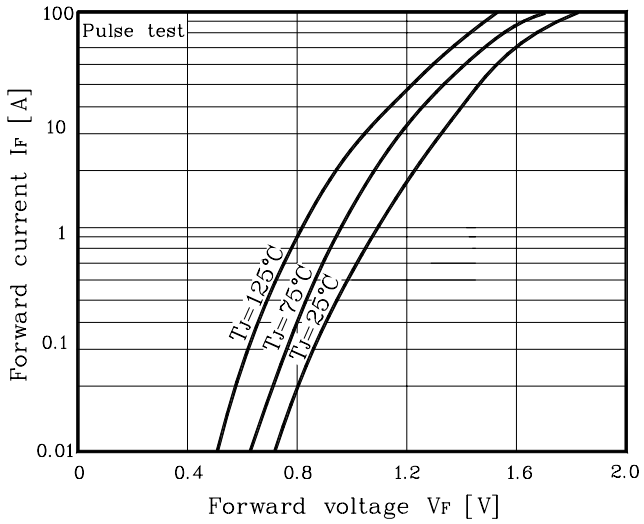


Fig. 2 I_R - V_R

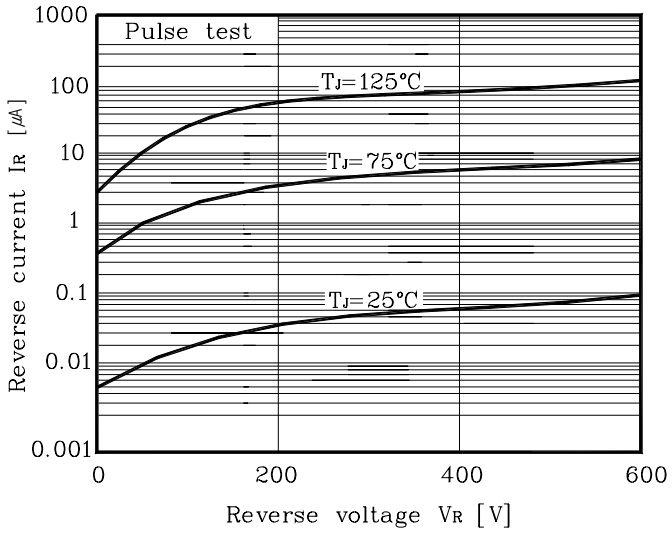


Fig. 3 P_F - I_O

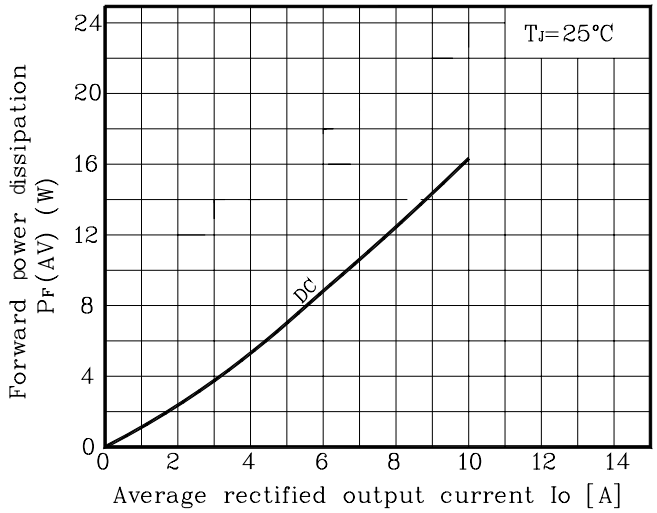


Fig. 4 C_T - V_R

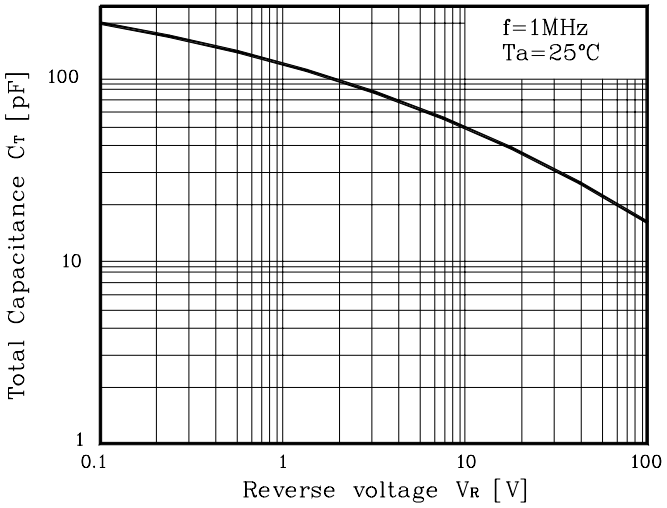


Fig. 5 I_{FSM} – Number of cycle

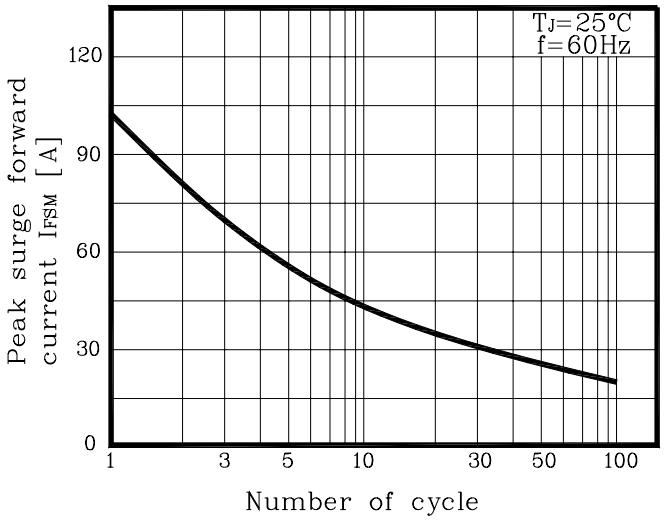
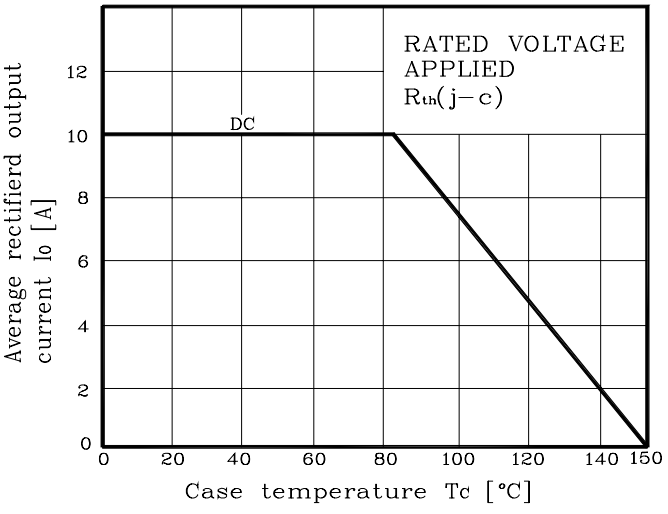
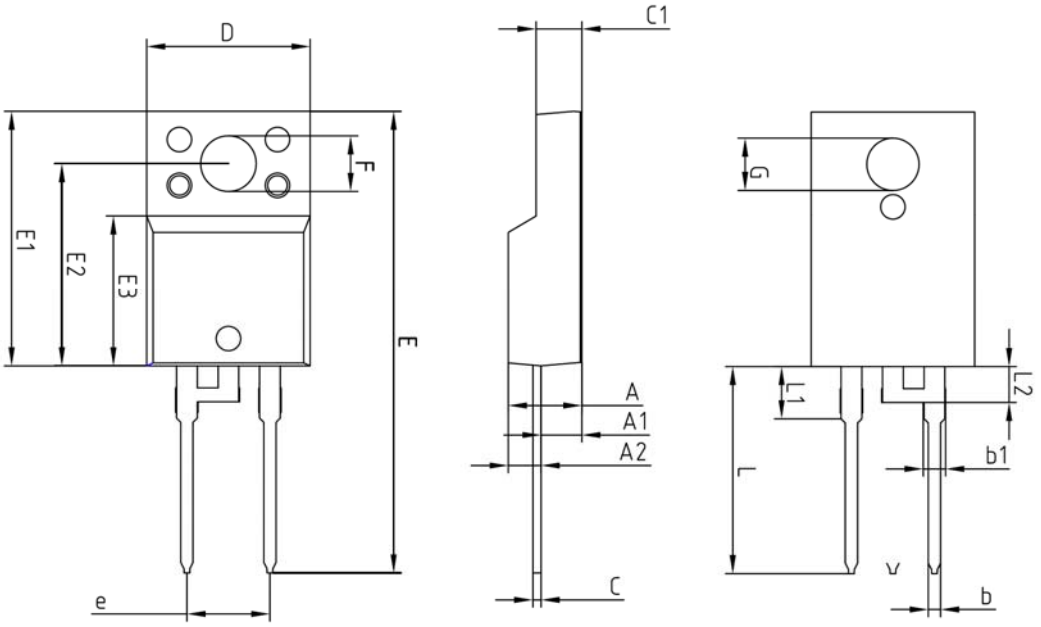


Fig. 6 I_O derating - T_C



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	5.08 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			
L2	2.21 BSC			

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AUK Semiconductor

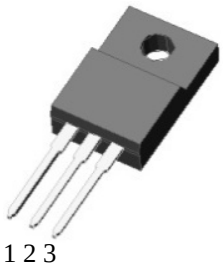
SF10A600HPI

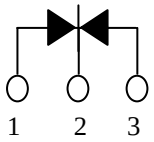
Ultra Fast Recovery Diode

Applications

- High speed switching and rectification
- Switching mode power supply
- Free Wheeling diode and snubber circuit

PIN Connection





1. Anode
2. Cathode
3. Anode

TO-220F-3L

Features

- Ultra-fast reverse recovery time: t_{rr}=30ns Max.
- Low forward voltage & low reverse current
- Low switching loss

Ordering Information

Type No.	Marking	Package Code
SF10A600HPI	SF10A600HPI	TO-220F-3L

Absolute Maximum Ratings

[Ta=25°C]

Characteristic	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	600	V
Average rectified output current	I_O	10	A
Peak forward surge current (Non-repetitive 60Hz sine wave)	I_{FSM}	80	A
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-45 ~ 150	°C

Electrical Characteristics

[Ta=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak forward voltage	V_{FM} 1)	I_F=5A 2)	-	-	1.9	V
Repetitive peak reverse current	I_{RRM} 1)	V_R=600V 2)	-	-	10	μA
Reverse recovery time	t_{rr} 1)	I_F=1A, di/dt=-100A/μs	-	-	30	ns
Thermal resistance	R_{th}	Junction to case	-	-	4.0	°C/W

1) Per Diode

2) Pulse test : $t_p \leq 380$ μs, Duty cycle ≤ 2%

Electrical Characteristic Curves

Fig.1 I_F - V_F (Per Diode)

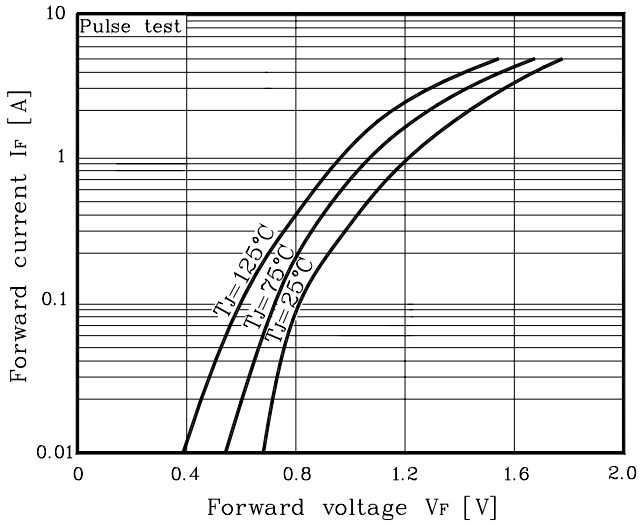


Fig. 2 I_R - V_R (Per Diode)

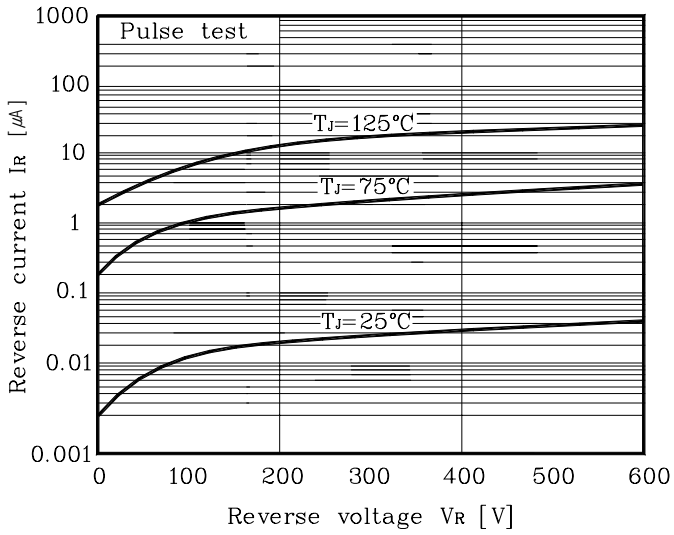


Fig. 3 P_F - I_O (Per Diode)

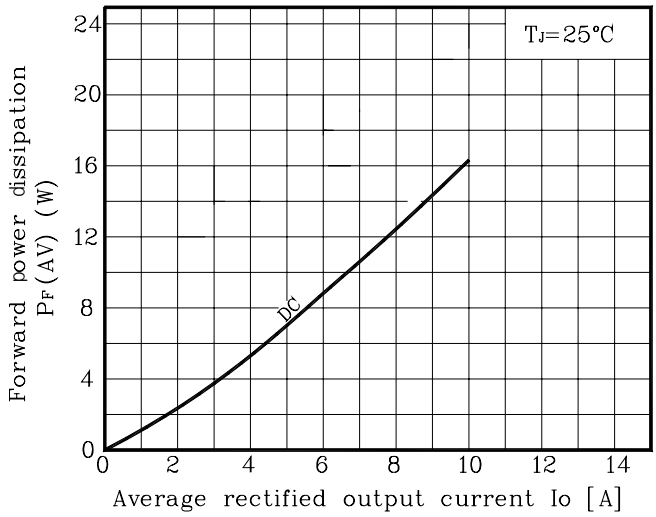


Fig. 4 C_J - V_R (Per Diode)

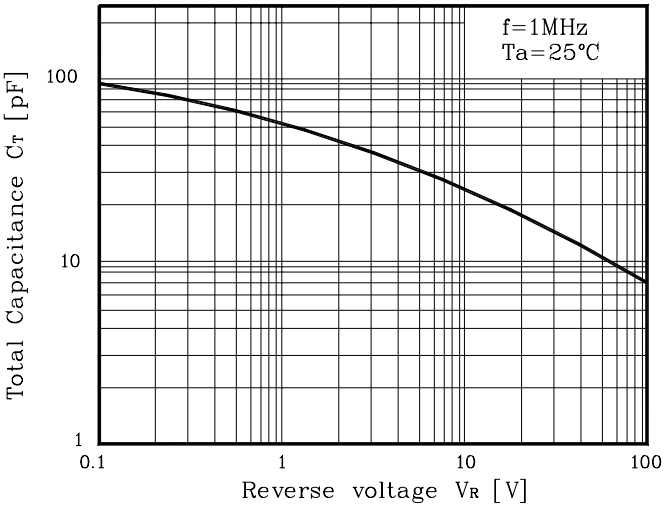


Fig. 5 I_{FSM} – Number of cycle (Per Diode)

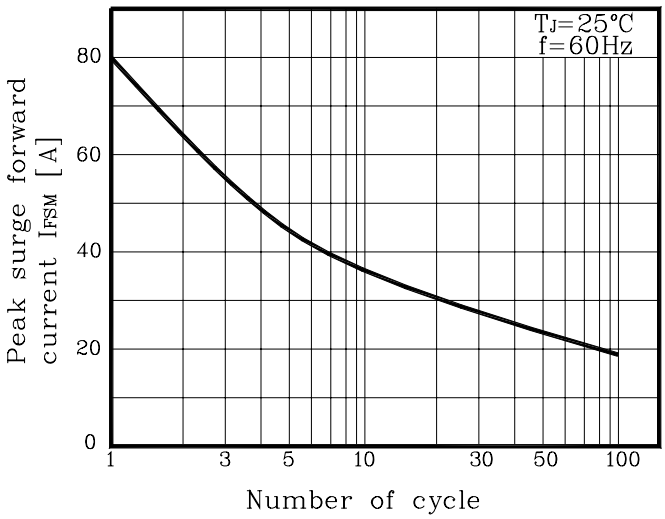
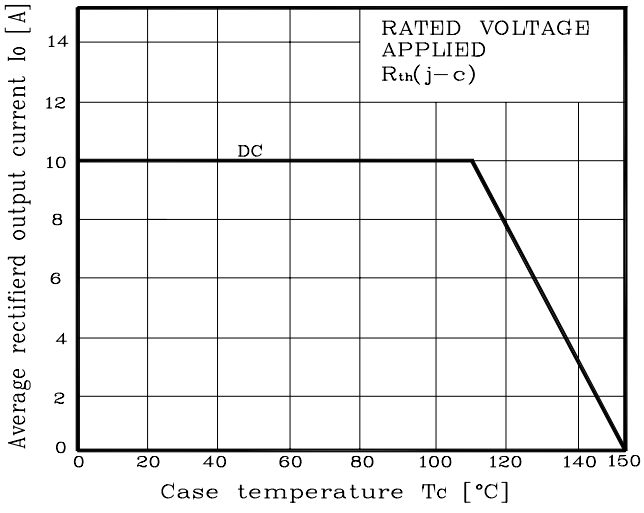
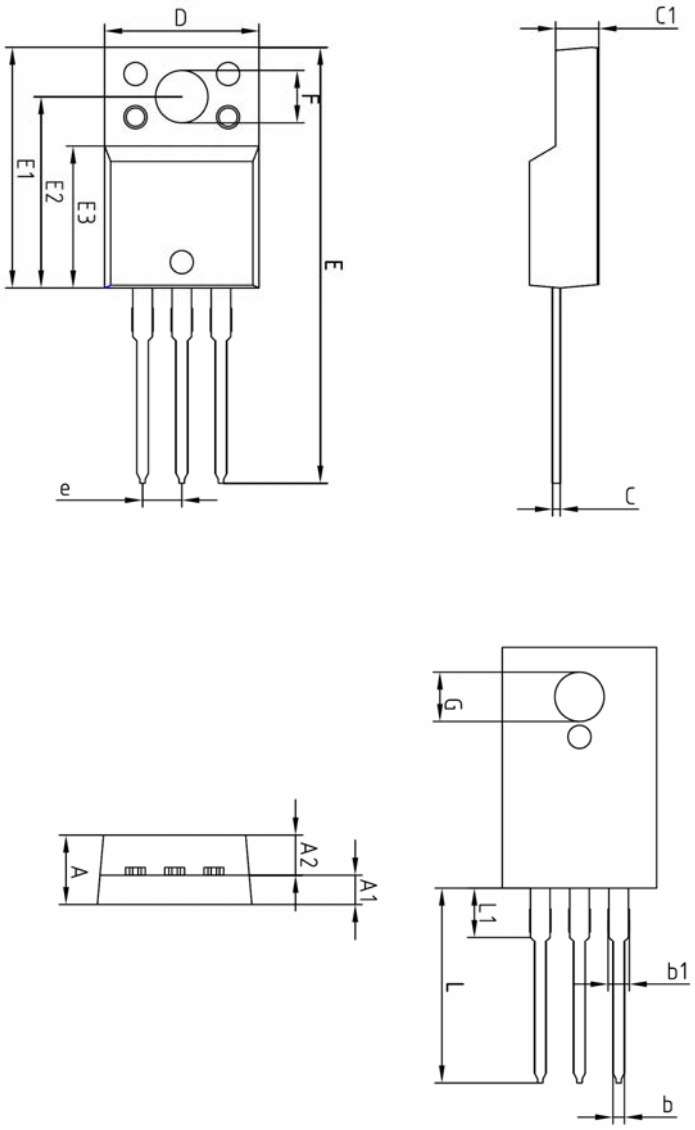


Fig. 6 I_O derating - T_C



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			

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AUK Semiconductor

SF15A600H

Ultra Fast Recovery Diode

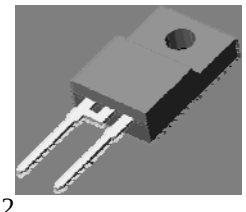
Applications

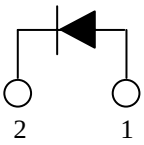
- High speed switching and rectification
- Switching mode power supply

Features

- Ultra-fast reverse recovery time: t_{rr}=35ns Max.
- Low forward voltage & low reverse current
- Low switching loss

PIN Connection





2
1

1. Anode
2. Cathode

TO-220F-2L

Ordering Information

Type No.	Marking	Package Code
SF15A600H	SF15A600H	TO-220F-2L

Absolute Maximum Ratings

[Tc=25°C]

Characteristic	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	600	V
Average forward current (60Hz Half Sine Wave Resistive Load)	$I_{O(AV)}$	15	A
Peak forward surge current (Non-repetitive 60Hz sine wave)	I_{FSM}	120	A
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-45 ~ 150	°C

Electrical Characteristics

[Tc=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak forward voltage	V_{FM} 1)	I_F=15A	-	-	1.9	V
Repetitive peak reverse current	I_{RRM} 1)	V_R=600V	-	-	25	μA
Reverse recovery time	t_{rr}	I_F=1A, di/dt=-100A/μs	-	-	30	ns
Thermal resistance	R_{th}	Junction to case	-	-	4.0	°C/W

1) Pulse test : $t_p \leq 380$ μs, Duty cycle ≤ 2%

Electrical Characteristic Curves

Fig.1 I_F - V_F

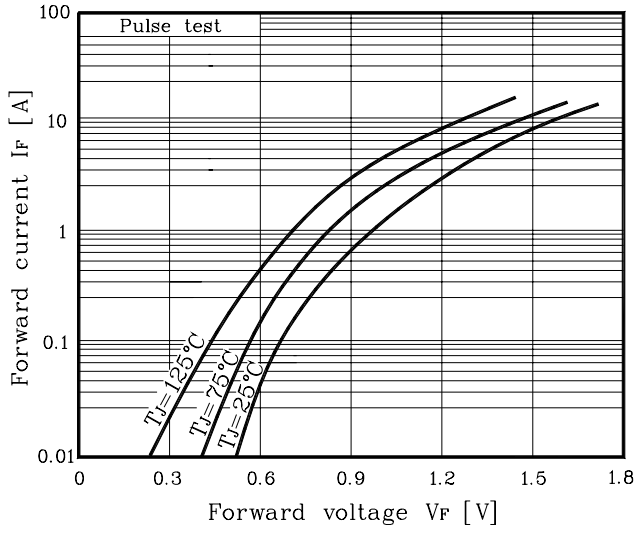


Fig. 2 I_R - V_R

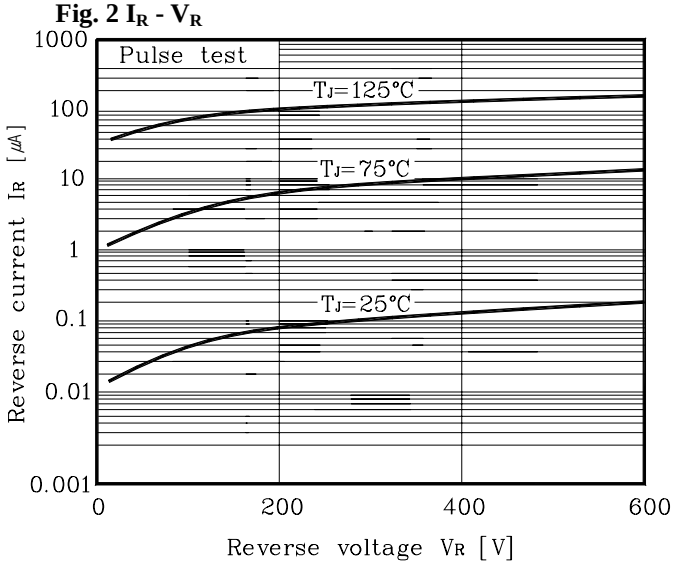


Fig. 3 P_F - I_O

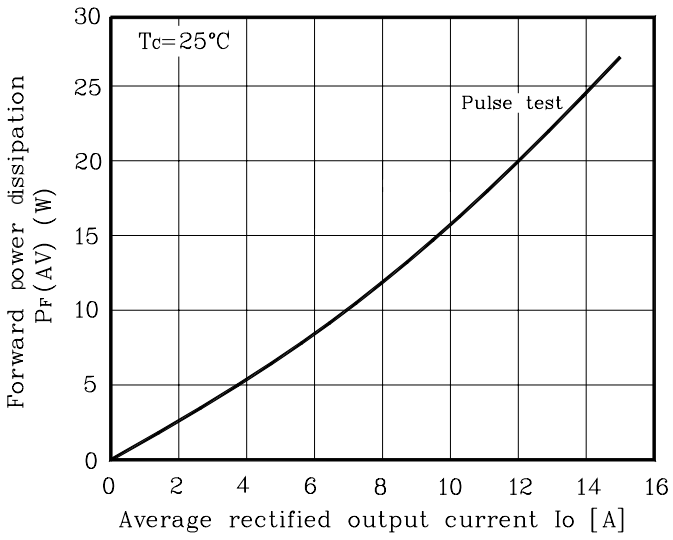


Fig. 4 C_J - V_R

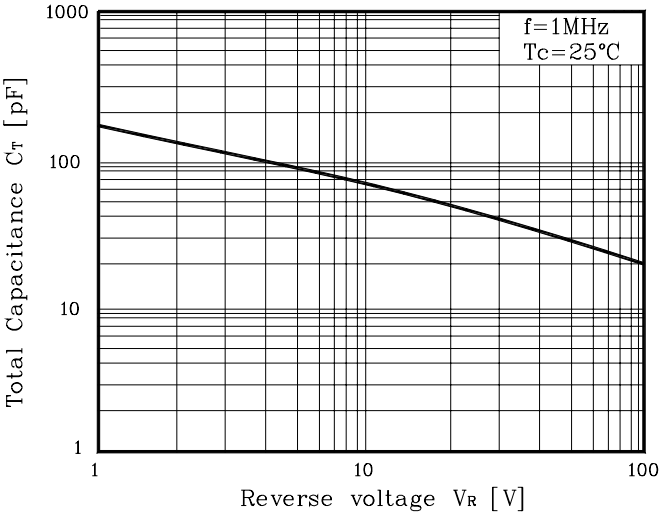


Fig. 5 I_{FSM} – Number of cycle

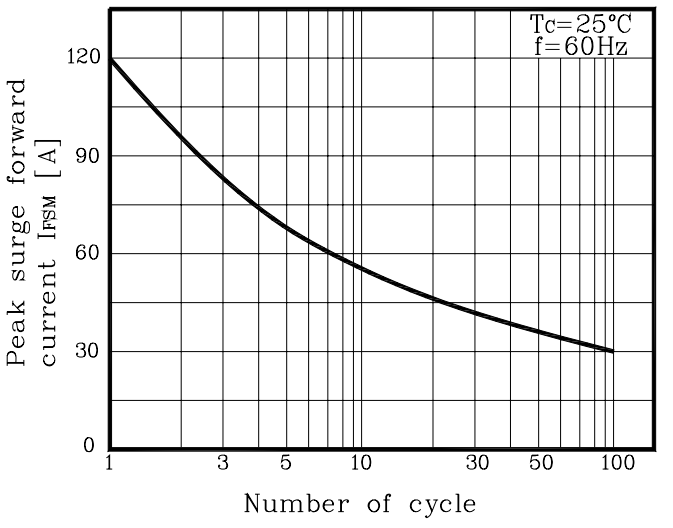
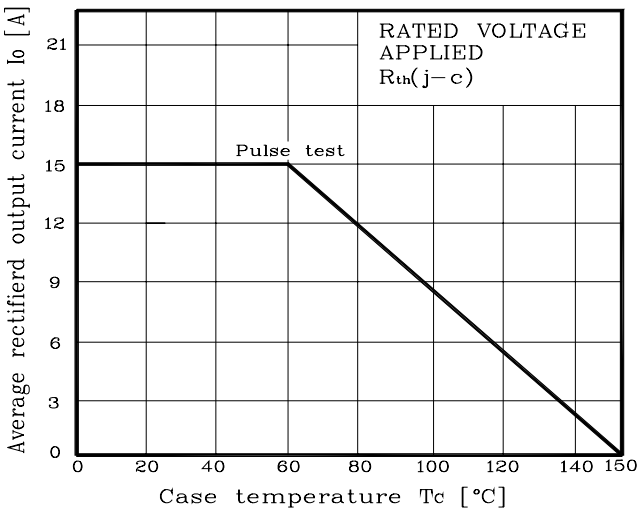
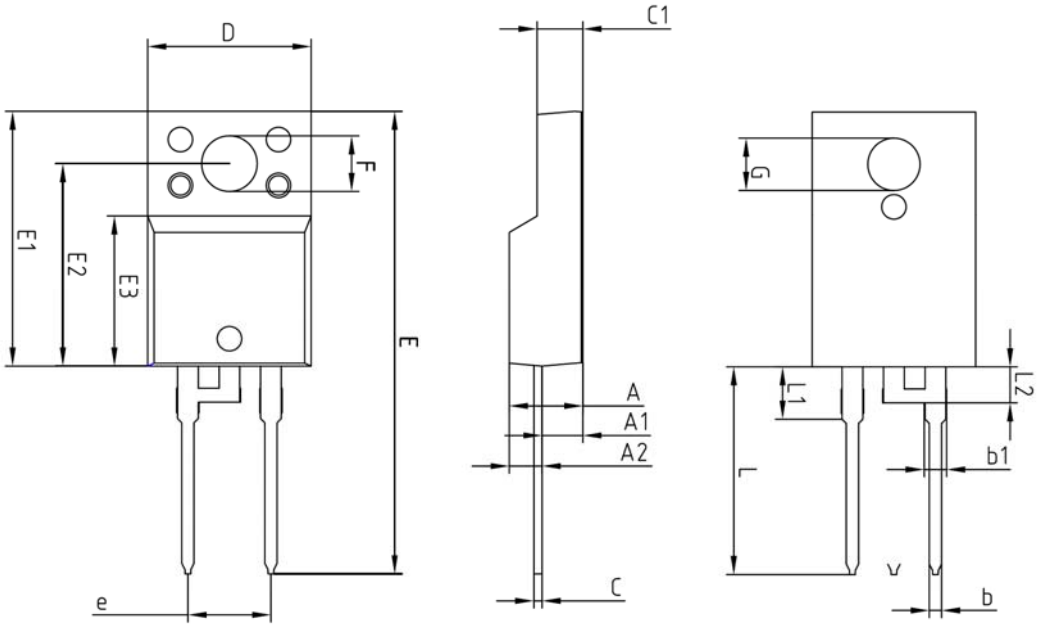


Fig. 6 I_O derating - T_C



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	5.08 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			
L2	2.21 BSC			

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