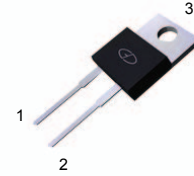


Features

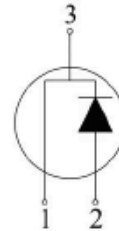
- Positive temperature coefficient, easier for parallel connection
- Temperature-insensitive switching characteristics
- Working temperature up to 175°C
- Reverse recovery current $I_{rr} = 0$
- Forward recovery Voltage $V_{FR} = 0$



TO-220AC

Applications

- Photovoltaic inverter
- Switching mode power supply(SMPS)
- Power factor correction(PFC)
- Eddy-current heating
- Uninterrupted power supply(UPS)
- Motor drive



Schematic Diagram

Absolute Maximum Ratings

Parameter	Symbol	Test Condition	Value	Units
Peak Repetitive Reverse Voltage	V_{RRM}	$T_J=25^{\circ}C$	1700	V
Peak Reverse Surge Voltage	V_{RSM}	$T_J=25^{\circ}C$	1700	
DC Reverse Voltage	V_{DC}	$T_J=25^{\circ}C$	1700	
Average Forward Current	I_F	$T_C < 150^{\circ}C$	10	A
		$T_C < 140^{\circ}C$	12	
Repetitive Peak Forward Current	I_{FRM}	$T_C=25^{\circ}C, t_p=10ms, \text{Half Sine Wave}, D=1$	50	A
		$T_C=110^{\circ}C, t_p=10ms, \text{Half Sine Wave}, D=1$	30	A
Non Repetitive Peak Forward Current	I_{FSM}	$T_C=25^{\circ}C, t_p=10ms, \text{Half Sine Wave}, D=1$	60	A
		$T_C=110^{\circ}C, t_p=10ms, \text{Half Sine Wave}, D=1$	45	A
Total Power Dissipation	P_{TOT}	$T_C=25^{\circ}C$	263	W
		$T_C=110^{\circ}C$	114	W
Reverse Recovery Time	T_{rr}	$I_F=10A, di/dt=200A/\mu s$	45	ns
Case Temperature	T_C		135	$^{\circ}C$
Junction Temperature	T_J		-55 to 175	$^{\circ}C$
Storage Temperature	T_{stg}		-55 to 175	$^{\circ}C$

Thermal Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ.	Max	
Thermal Resistance(Junction to Case)	$R_{\theta JC}$		-	0.57	-	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ.	Max	
Forward Voltage	V_F	$I_F=10\text{A}, T_J=25^{\circ}\text{C}$	-	1.4	1.7	V
		$I_F=10\text{A}, T_J=175^{\circ}\text{C}$	-	2.2	2.8	
Reverse Leakage Current	I_R	$V_R=600\text{V}, T_J=25^{\circ}\text{C}$	-	11	100	μA
		$V_R=600\text{V}, T_J=175^{\circ}\text{C}$	-	20	200	
Total Storage Charge	Q_C	$V_R=600\text{V}, I_F=10\text{A}$ $di/dt=500\text{A}/\mu\text{s}, T_J=25^{\circ}\text{C}$	-	97	-	nC
Capacitance	C	$V_R=0\text{V}, T_J=25^{\circ}\text{C}, f=1\text{MHz}$	-	1370	-	pF
		$V_R=200\text{V}, T_J=25^{\circ}\text{C}, f=1\text{MHz}$	-	116	-	
		$V_R=400\text{V}, T_J=25^{\circ}\text{C}, f=1\text{MHz}$	-	106	-	

Typical Characteristics Curves

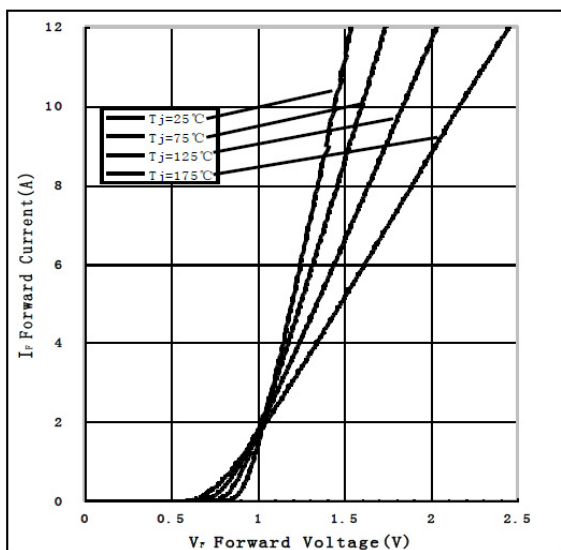


Figure 1. Typical Forward Characteristics Test Temperature: T_J

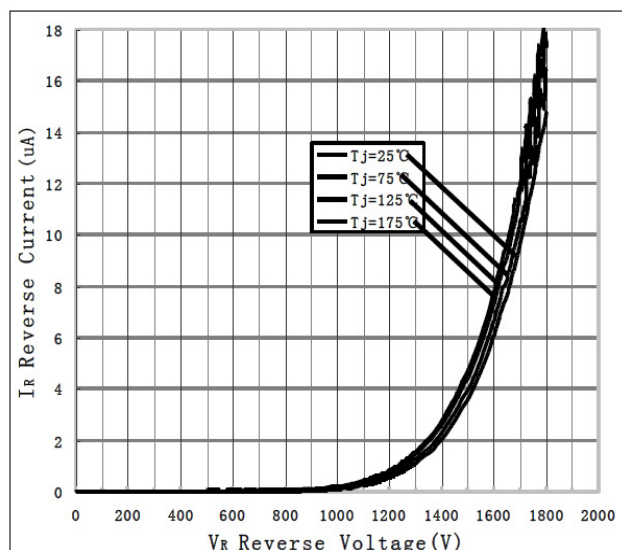


Figure 2. Typical Reverse Characteristics Test Temperature: T_J

Typical Characteristics Curves

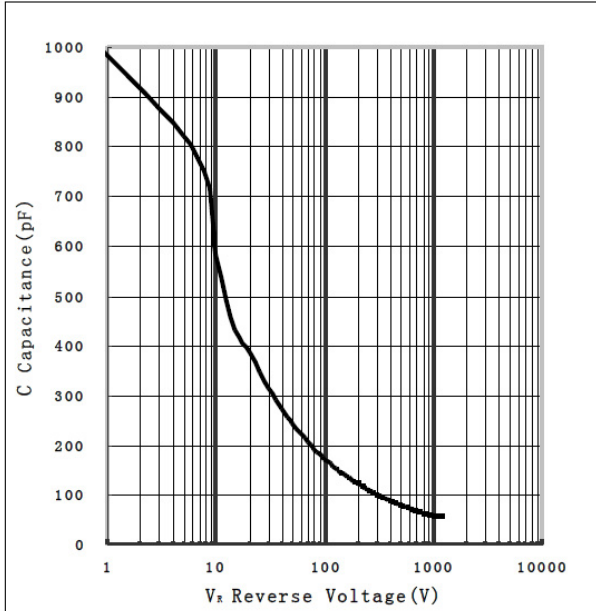


Figure 3. Typical Capacitance-Reverse Voltage Curve, T_C=25°C ,f=1MHz

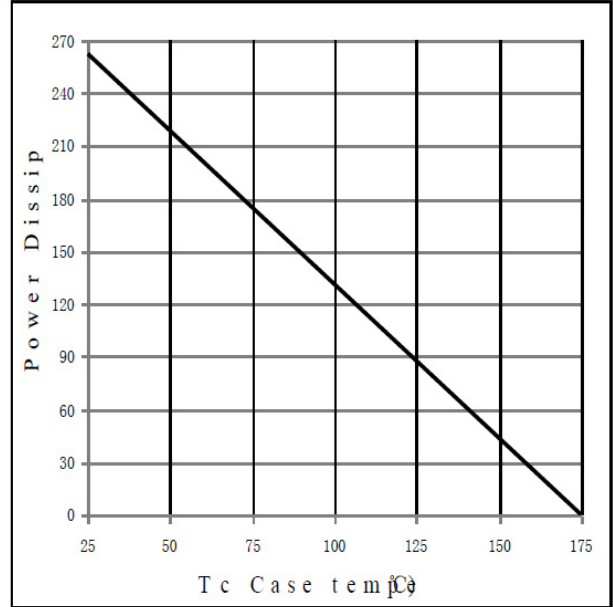


Figure 4. Power Dissipation Rate

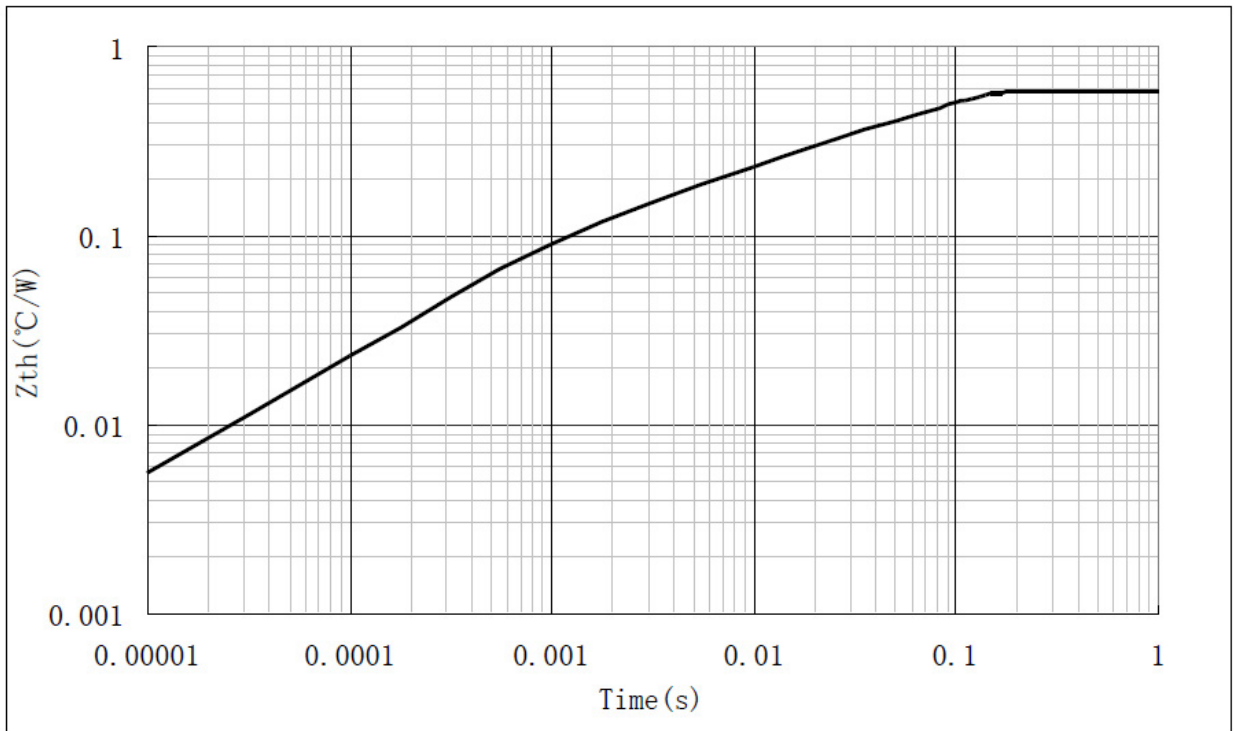
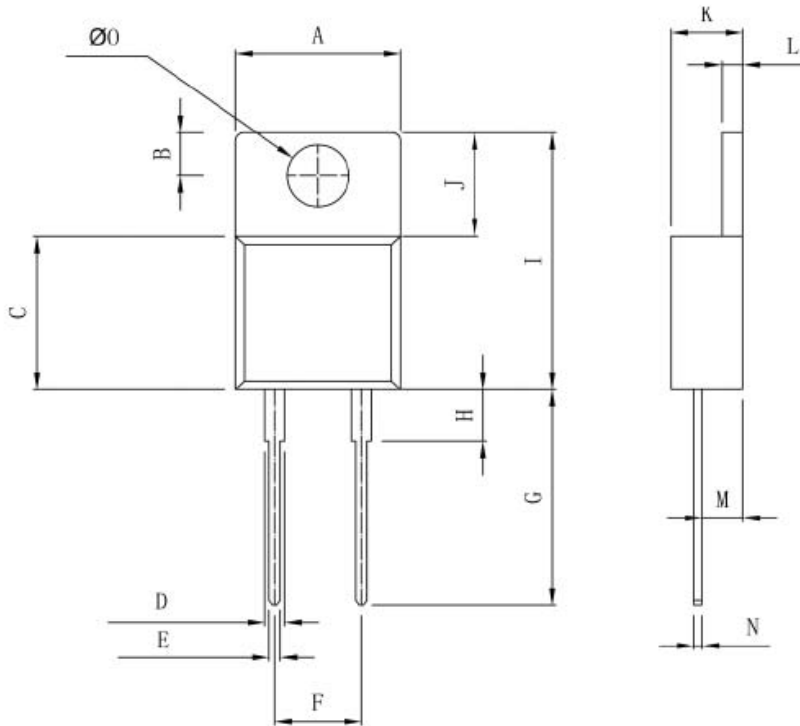


Figure 5. Transient Thermal Resistance

Package Outline Dimensions TO-220AC



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	9.677	9.931	0.381	0.391
B	2.540	3.048	0.100	0.120
C	9.018	9.271	0.355	0.365
D	1.144	1.397	0.145	0.055
E	0.635	0.889	0.025	0.035
F	5.080		0.200	
G	12.701	12.954	0.500	0.511
H	3.049	3.030	0.120	0.130
I	15.113	16.620	0.595	0.615
J	6.096	6.350	0.240	0.250
K	4.191	4.699	0.165	0.185
L	1.219	1.321	0.048	0.052
M	2.386	2.489	0.094	0.098
N	0.458	0.635	0.018	0.025
Ø0	3.632	3.734	0.143	0.146