

◆ Features

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching
- RoHS compliant

1200V SILICON CARBIDE
SCHOTTKY DIODE

V_{RRM} 1200V
 I_F 20A ($T_C=159^\circ\text{C}$)
 Q_C 98nC

◆ Benefits

- Higher frequency
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability



TO-247AC

Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit	Note	
V_{RRM}	Repetitive peak reverse voltage	1200	V		
I_F	Continuous forward current	$T_C=25^\circ\text{C}$	73	A	Figure 3
		$T_C=135^\circ\text{C}$	35	A	
		$T_C=159^\circ\text{C}$	20	A	
I_{FSM}	Non-repetitive forward surge current	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half sine pulse	110	A	
		$T_C=110^\circ\text{C}$, $t_p=10\text{ms}$, Half sine pulse	88	A	
I_{FRM}	Repetitive Peak Forward Surge Current	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half sine pulse	98	A	
		$T_C=110^\circ\text{C}$, $t_p=10\text{ms}$, Half sine pulse	82	A	
$\int i^2 dt$	i^2t value	$T_C=25^\circ\text{C}$, $t_p=10\text{ms}$	60	A^2S	
		$T_C=110^\circ\text{C}$, $t_p=10\text{ms}$	38	A^2S	
P_{tot}	Power Dissipation	$T_C=25^\circ\text{C}$	357	W	Figure 4
		$T_C=110^\circ\text{C}$	154	W	
		$T_C=150^\circ\text{C}$	59	W	
T_j, T_{stg}	Operating and Storage Temperature	-55 to +175	$^\circ\text{C}$		

Electrical Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
V _{DC}	DC blocking voltage		1200	-	-	V	
V _F	Forward voltage	I _F =10A	-	1.22	-	V	Figure 1
		I _F =20A, Tc=25°C	-	1.45	1.7	V	
		I _F =20A, Tc=150°C	-	1.8	-	V	
		I _F =20A, Tc=175°C	-	1.9	-	V	
I _R	Reverse current	V _R =1200V, Tc=25°C	-	2	150	uA	Figure 2
		V _R =1200V, Tc=150°C	-	110	-	uA	
		V _R =1200V, Tc=175°C	-	160	-	uA	
Q _C	Total capacitive charge	V _R =800V	-	98	-	nC	Figure 6
C	Total capacitance	V _R =1V, f=1MHZ	-	1100	-	pF	Figure 5
		V _R =400V, f=1MHZ	-	92	-	pF	
		V _R =800V, f=1MHZ	-	78	-	pF	
E _C	Capacitance Stored Energy	V _R =800V	-	30	-	uJ	Figure 7

Thermal Characteristics

Symbol	Parameter	Value		Unit	Note
		Typ.	Max.		
R _{th(j-c)}	Thermal resistance (Junction to case)	0.42	-	°C/W	Figure 8

Electrical Characteristic Curves

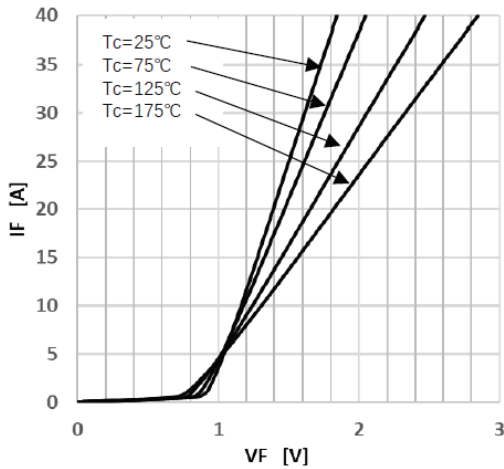


Figure 1 Forward Characteristics

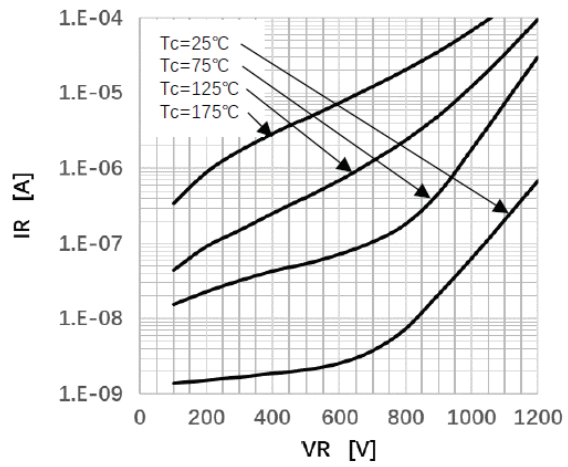


Figure 2 Reverse Characteristics

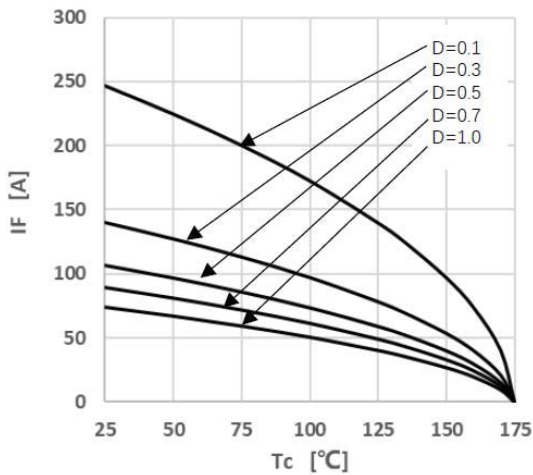


Figure 3 Peak Forward Current Derating

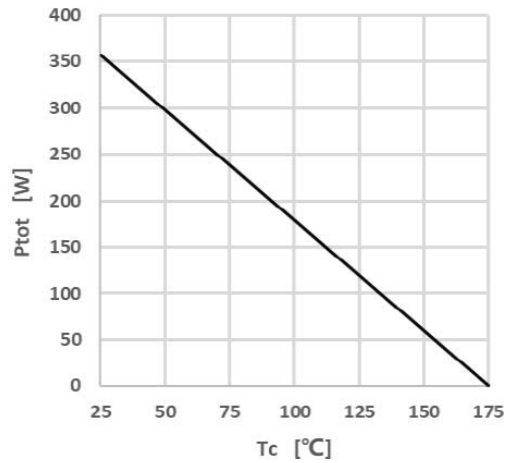


Figure 4 Power Dissipation

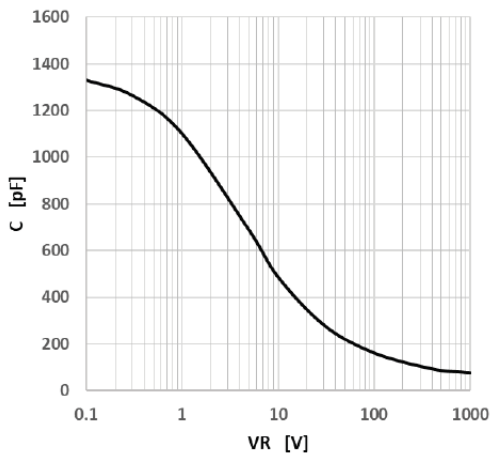


Figure 5 Capacitance vs. Reverse Voltage

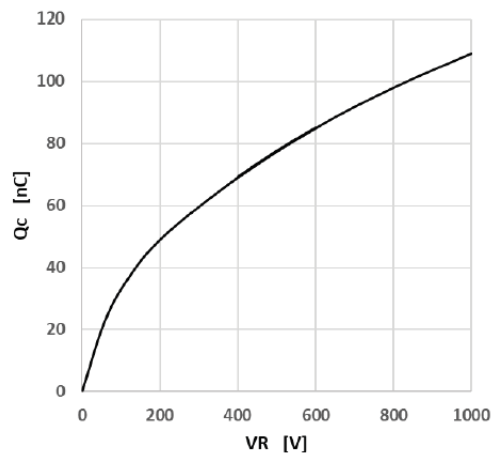


Figure 6 Capacitance Charge vs. Reverse Voltage

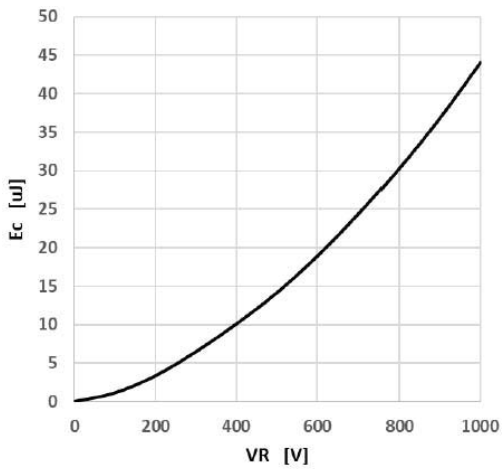


Figure 7 Capacitance Stored Energy

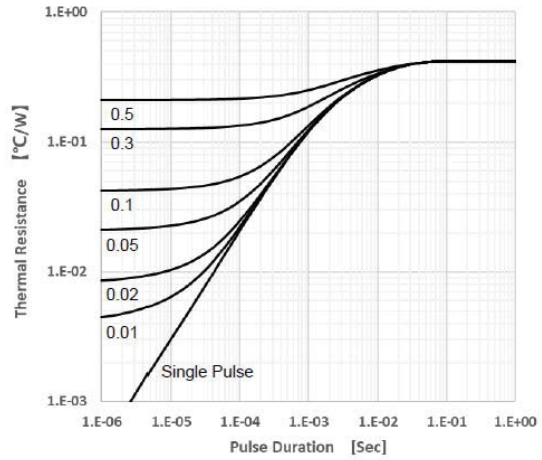
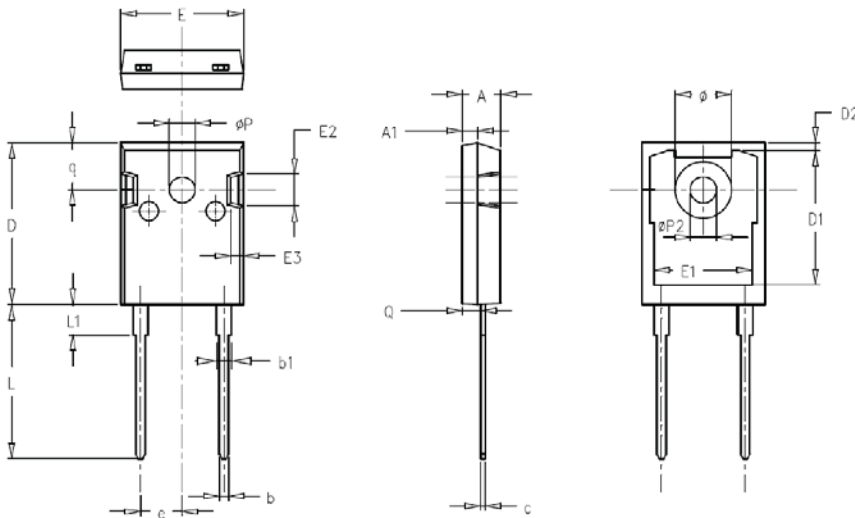


Figure 8 Transient Thermal Impedance

TO-247AC Package Dimensions : (Unit : mm)



SYMBOL	MILLIMETERS			NOTES	SYMBOL	MILLIMETERS			NOTES
	Normal	MIN.	MAX.			Normal	MIN.	MAX.	
A	4.98	4.68	5.36		øP	3.66	3.45	3.85	
A1	1.99	1.90	2.10		e	5.44	BSC		
Q	2.41	2.30	2.60		q	6.24	5.99	6.58	
c	0.60	0.48	0.72		øP2	3.45	3.24	3.64	
b	1.20	1.00	1.40		ø	7.14	7.10	7.30	
b1	2.07	1.90	2.30		D1	16.56	16.10	17.10	
D	21.10	20.80	21.80		D2	0.98	0.80	1.36	
E	15.98	15.38	16.20		E1	13.30	13.00	13.52	
L	20.28	19.50	20.50		E2	5.64	5.10	6.10	
L1	4.01	3.75	4.35		E3	2.33	1.90	2.70	