

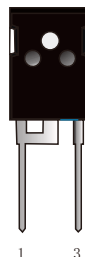
DESCRIPTION

SiC Schottky Diode has no switching loss, provides improved system efficiency against Si diodes by utilizing new semiconductor material-Silicon Carbide, enables higher operating frequency, and helps increasing power density and reduction of system size /cost. Its high reliability ensures robust operation during surge or over_voltage conditions.

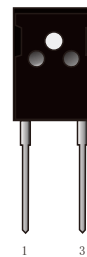
FEATURES

- Max Junction Temperature 175° C
- High Surge Current Capacity
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery/No Forward Recovery

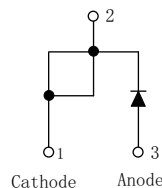
TO-247AC



TO-247AC-N



Base common cathode



MECHANICAL DATA

- Case: JEDEC TO-247AC/TO-247AC-N
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- Mounting Torque: 10 in-lbs maximum

TYPICAL APPLICATIONS

- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

KEY PERFORMANCE AND PACKAGE PARAMETERS

Type	V _{DC}	I _F	Q _c	T _{j,max}	Package
SC10120P	1200V	10A	30nC	175°C	TO-247AC TO-247AC-N

RATINGS AND CHARACTERISTIC OF SC10120P

MAXIMUM RATINGS

(Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous Forward Current for $R_{th(j-c)}$	I_F	10 ($T_c=156^\circ\text{C}$) 17 ($T_c=135^\circ\text{C}$) 34 ($T_c=25^\circ\text{C}$)	A
Non-Repetitive Forward Surge Current (Half-Sine Pulse, $t_p=8.3\text{ms}$)	$I_{F,SM}$	95 ($T_c=25^\circ\text{C}$) 85 ($T_c=150^\circ\text{C}$)	A
I^2t value	$\int i^2t$	37 ($T_c=25^\circ\text{C}$) 30 ($T_c=150^\circ\text{C}$)	A^2S
Diode dv/dt ruggedness($V_R=0\dots960\text{V}$)	dv/dt	80	V/nS
Power dissipation for $R_{th(j-c,max)}$ ($T_c=25^\circ\text{C}$)	P_{tot}	150	W
Operating junction temperature range	T_j	-55...175	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55...175	$^\circ\text{C}$

THERMAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value		Unit
		Typ	Max	
Diode thermal resistance junction-case	$R_{th(j-c)}$	0.8	1.0	K/W

RATINGS AND CHARACTERISTIC OF SC10120P

ELECTRICAL CHARACTERISTICS (T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
DC blocking voltage	V _{DC}	T _j =25...175°C	1200			V
Diode forward voltage	V _F	IF=10A T _j =25°C IF=10A T _j =125°C IF=10A T _j =175°C		1.7 2.3 2.8	1.9 2.5 3.2	V
Reverse current	I _R	VR=1200V T _j =25°C VR=1200V T _j =125°C VR=1200V T _j =175°C			20 100 200	uA

DYNAMIC CHARACTERISTICS(at T_j=25°C, unless otherwise specified)

Parameter	Symbol	conditions	Value			Unit
			min	typ	max	
Total capacitive charge	Q _c	VR=1200V, IF=10A di/dt=200A/uS T _j =25°C		30		nC
Total capacitance	C	V _R =0V, f=1MHz V _R =400V, f=1MHz V _R =800V, f=1MHz T _j =25°C		650 49 40		pF

RATINGS AND CHARACTERISTIC OF SC10120P

FIG.1-FORWARD CURRENT DERATING CURVE

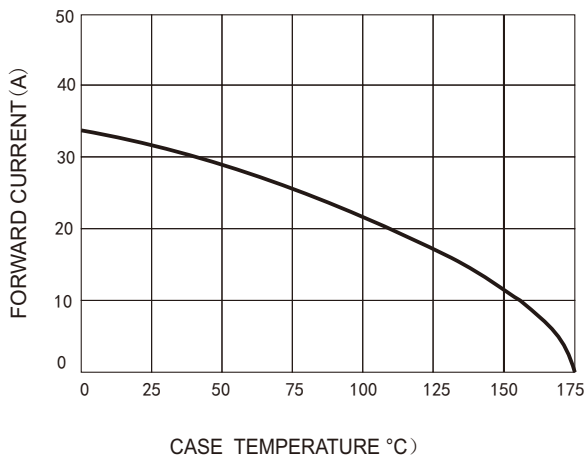


FIG.2-TYPICAL JUNCTION CAPACITANCE

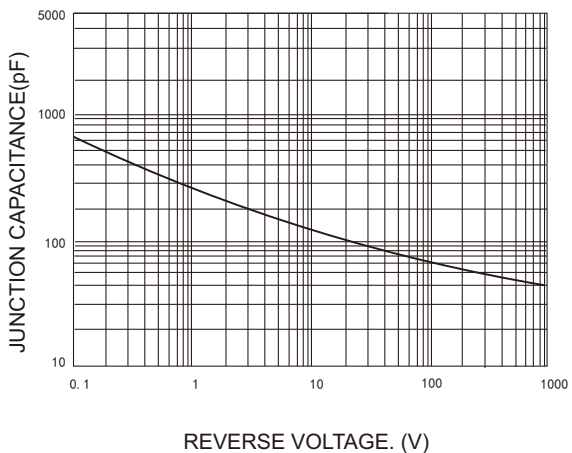


FIG.3-FORWARD CURRENT DERATING CURVE

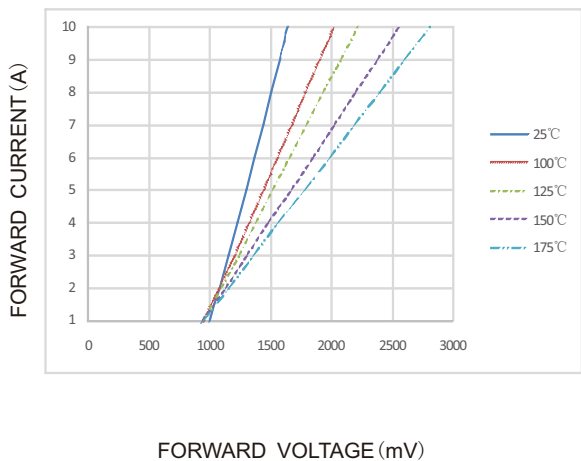
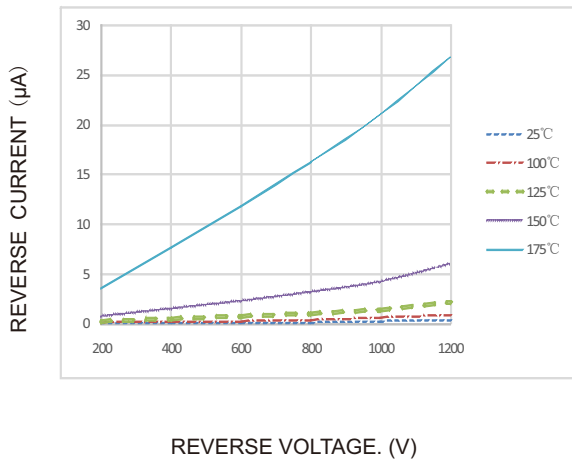
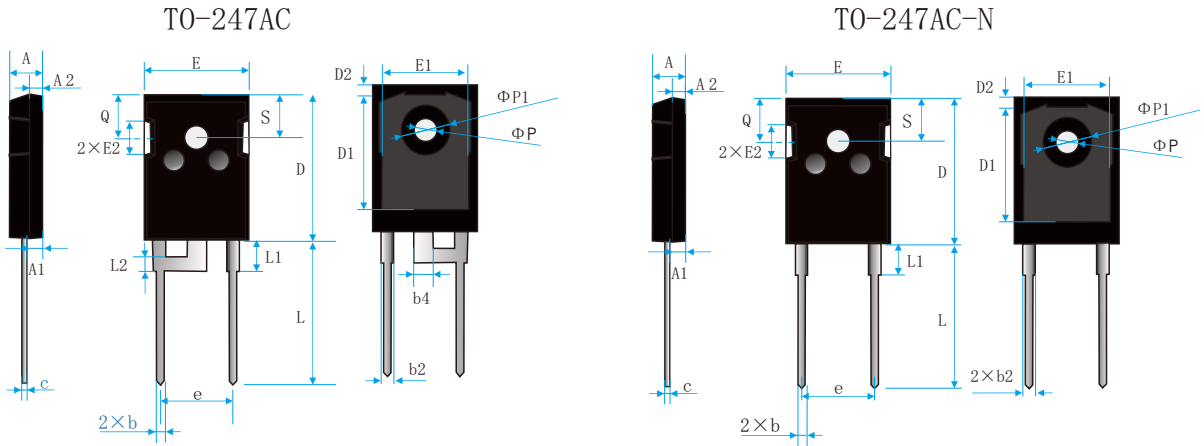


FIG.4-REVERSE CHARACTERISTICS



PACKAGE OUTLINE DIMENSIONS



Symbol	millimeter		
	Min	Typ	MAX
A	4.70		5.30
A1	2.21		2.59
A2	1.50		2.49
D	20.30		20.70
E	15.48		16.24
E2	4.30		5.50
e		10.92	
L	19.80		20.30
L1	4.40		4.60
ΦP		3.50	
Q	5.38		6.19
S		6.14	
b	0.99		1.40
b2	1.65		2.39
b4	2.59		3.43
c	0.38		0.89
D1	13.07		
D2	0.51		1.35
E1	13.45		
ΦP1		7.20	
L2		2.10	

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