

Features

- Zero Forward Recovery Voltage
- Positive Temperature Coefficient
- High-Frequency Operation
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)

Benefits

- Temperature-Independent Performance
- Essentially No Switching Losses
- Low Heat Dissipation Requirements

Applications

- Switching Power Supply
- Power Factor Correction
- Motor Drive, Traction
- Charging Pile

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 0.34°C/W Junction to Case

MCC Part Number	Device Marking
SICPT40120YA	SICPT40120YA

Peak Repetitive Reverse Voltage	V_{RRM}	1200V	
Surge Peak Reverse Voltage	V_{RSM}	1200V	
DC Reverse Voltage	V_{DC}	1200V	
Average Forward Current	I_F	40A	$T_c=144^{\circ}\text{C}$
Non-repetitive Peak Forward Surge Current	I_{FSM}	280A	$T_c=25^{\circ}\text{C}$, $t_p=10\text{ms}$, Half Sine Pulse
Power Dissipation	P_D	440W	$T_c=25^{\circ}\text{C}$

Note:1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

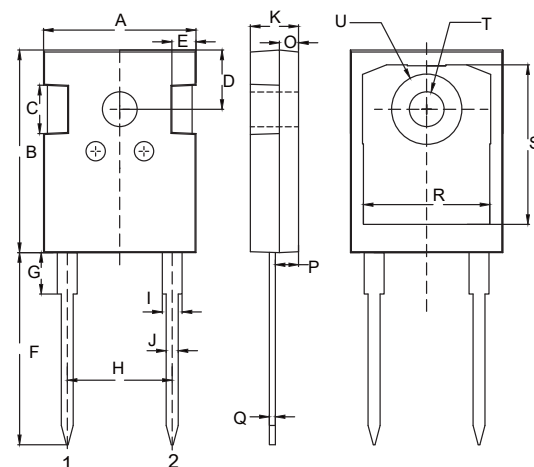
2. High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

Internal Structure:



40Amp Silicon Carbide Schottky Barrier Rectifier 1200 Volts

TO-247AD



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.602	0.642	15.30	16.30	
B	0.799	0.839	20.30	21.30	
C	0.189	0.205	4.80	5.20	
D	0.242		6.15		BSC.
E	0.091	0.106	2.30	2.70	
F	0.768	0.807	19.50	20.50	
G	-----	0.189	-----	4.80	
H	0.428		10.88		BSC.
I	0.075	0.087	1.91	2.21	
J	0.044	0.054	1.11	1.36	
K	0.189	0.205	4.80	5.20	
O	0.073	0.085	1.85	2.15	
P	0.087	0.103	2.21	2.61	
Q	0.020	0.030	0.51	0.75	
R	0.512	0.535	13.00	13.60	
S	0.640	0.663	16.25	16.85	
T	0.134	0.150	3.40	3.80	ϕ
U	-----	0.287	-----	7.30	ϕ

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Conditions	Typ.	Max.	Units
Forward Voltage	V_F	$I_F=40A, T_J=25^{\circ}C$	1.41	1.58	V
		$I_F=40A, T_J=175^{\circ}C$	2.02		V
Reverse Leakage Current	I_R	$V_R=1200V, T_J=25^{\circ}C$	3	38	μA
		$V_R=1200V, T_J=175^{\circ}C$	19		μA
Total Capacitive Charge	Q_C	$V_R=800V$	216		nC
Total capacitance	C	$V_R=0V, f=1MHz$	2900		pF
		$V_R=400V, f=1MHz$	204		pF
		$V_R=800V, f=1MHz$	156		pF
Capacitance Stored Energy	E_C	$V_R=800V$	55		μJ

Curve Characteristics

Fig. 1 - Typical Forward Characteristics

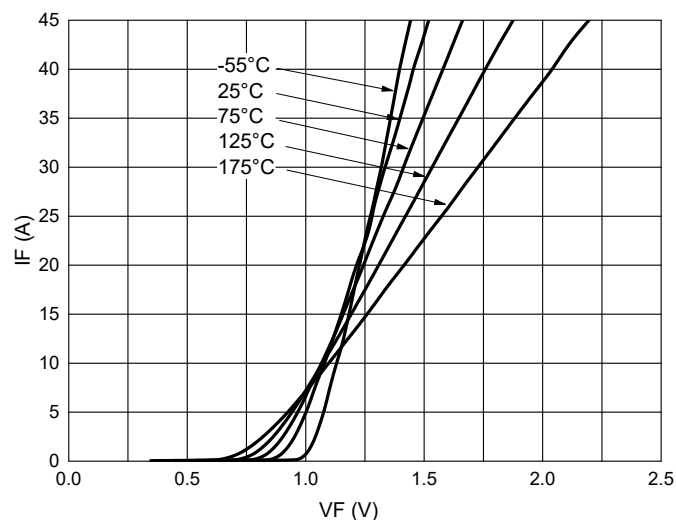


Fig. 2 - Typical Reverse Leakage Characteristics

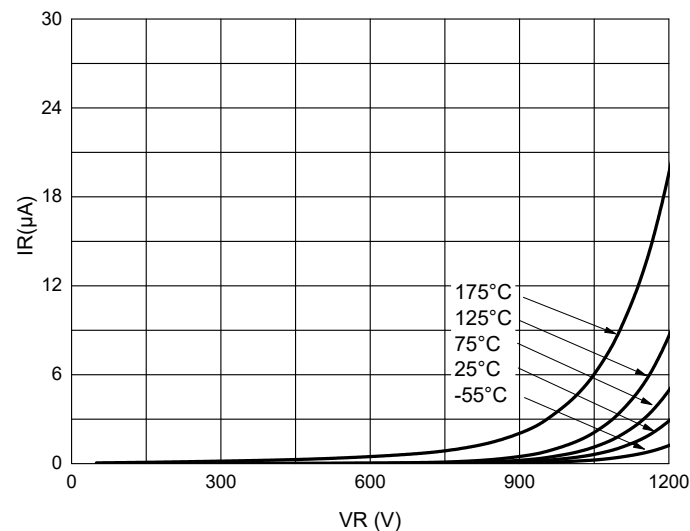


Fig. 3 - Capacitance vs Reverse Voltage

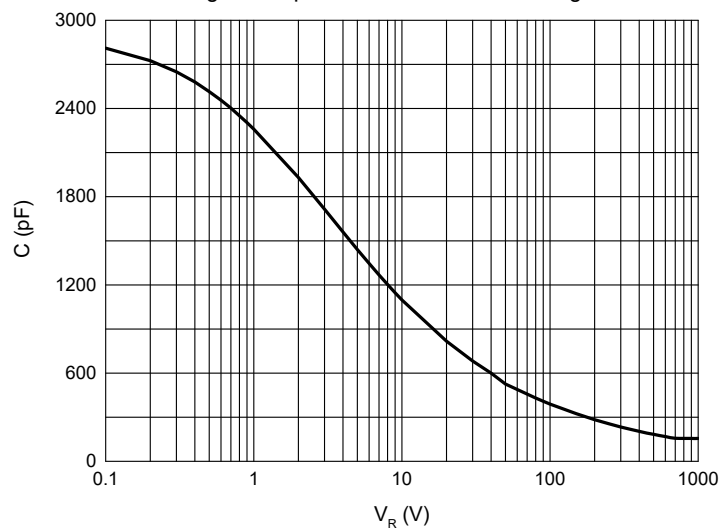


Fig. 4 - Current Derating

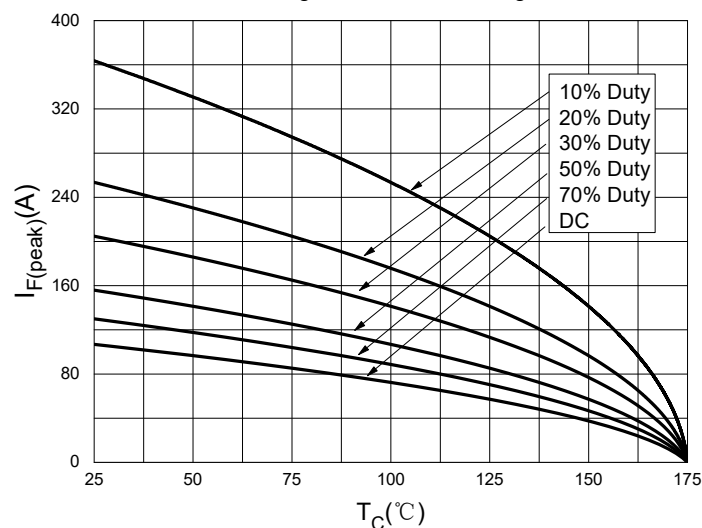


Fig. 5 - Capacitive Charge vs Reverse Voltage

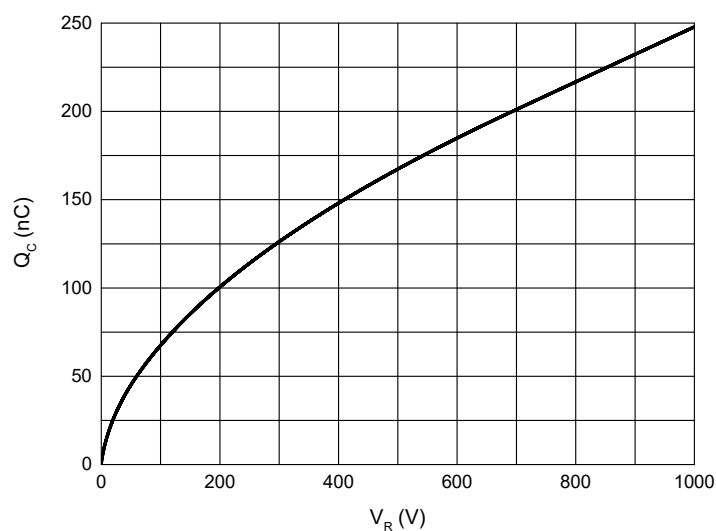
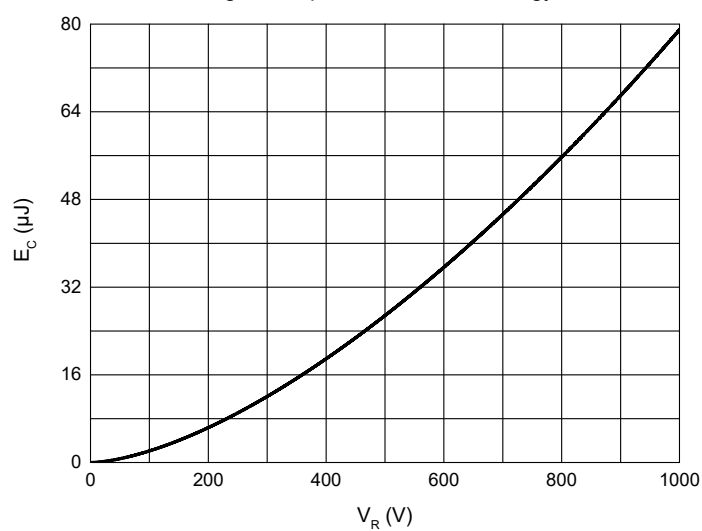


Fig. 6 - Capacitance Stored Energy



Curve Characteristics

Fig. 7 - Typical Power Derating

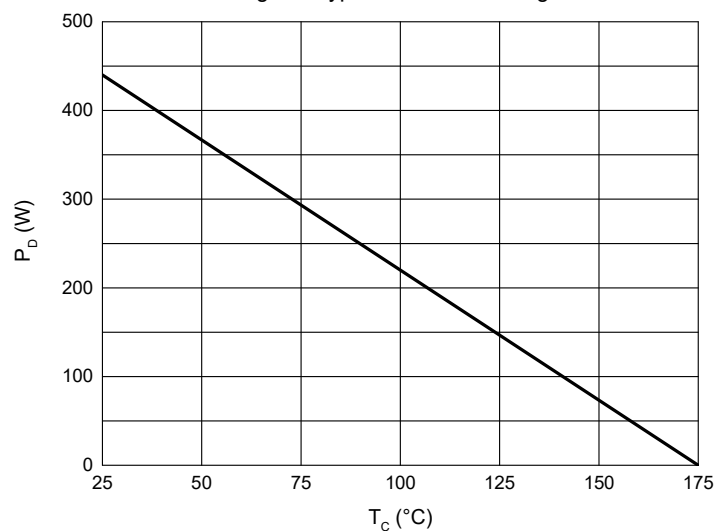
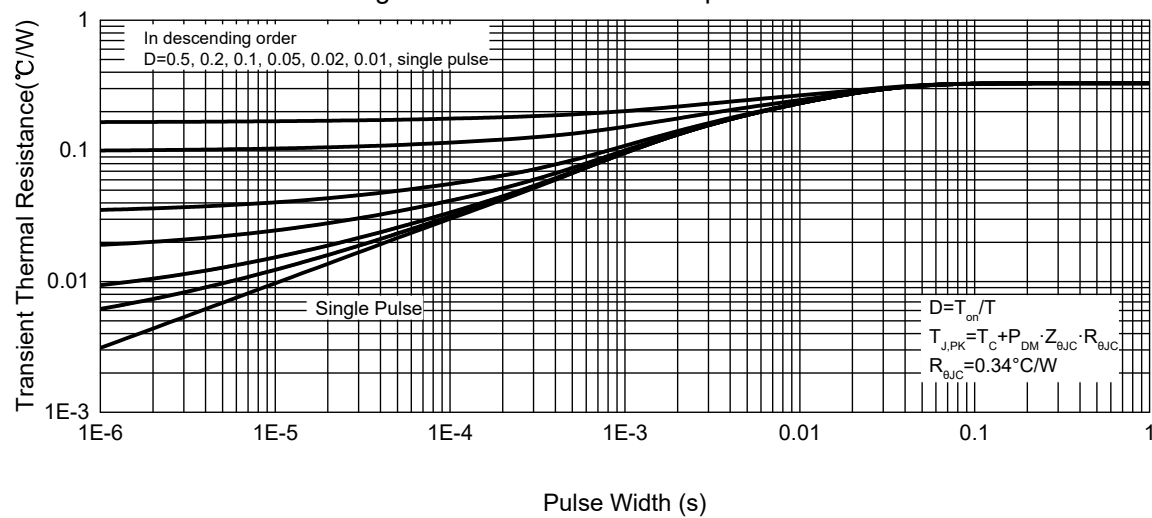


Fig. 8 - Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-BP	Bulk: 360pcs/Box

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