

Features

- Fully Automotive Qualified to AEC-Q101
- Merged PiN Schottky (MPS) Diodes Technologies
- Zero Reverse Recovery Current
- Positive Temperature Coefficient
- High-Speed Switching
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant^(Note 2) ("P" Suffix designates RoHS Compliant. See ordering information)

Benefits

- Temperature-Independent Performance
- Low Switching Loss
- Low Heat Dissipation Requirements

Applications

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

Maximum Ratings

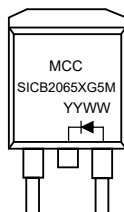
Parameter	Symbol	Rating	Unit
Peak Repetitive Reverse Voltage@T _J =25°C	V _{RRM}	650	V
Surge Peak Reverse Voltage@T _J =25°C	V _{RSM}	650	V
DC Reverse Voltage@T _J =25°C	V _{DC}	650	V
Continuous forward Current @T _C =25°C	I _F	86	A
Continuous forward Current @T _C =135°C	I _F	39	A
Continuous forward Current @T _C =160°C	I _F	20	A
Non-repetitive Peak Forward Surge Current @T _C =25°C, t _p =10ms, Half Sine Pulse	I _{FSM}	380	A
Power Dissipation @T _C =25°C	P _D	250	W
Power Dissipation @T _C =110°C	P _D	108	W
i ² t Value@ T _C =25°C ,tp=10ms	∫i ² dt	722	A ² S

Note1: Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Note2: High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

Internal Structure:

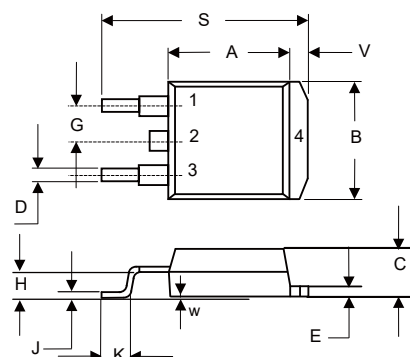
PIN 1 ○ NC
PIN 3 ○ → PIN 2,4



Device Code: SICB2065XG5M
Date Code: YYWW (Year & Week)

20Amp Silicon Carbide Schottky Diode 650 Volts

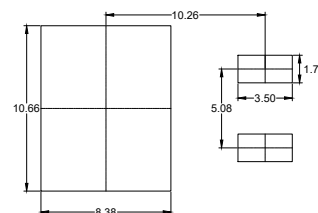
D²-PAK



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.331	0.370	8.40	9.40	
B	0.378	0.417	9.60	10.60	
C	0.165	0.189	4.20	4.80	
D	0.027	0.037	0.68	0.94	
E	0.045	0.055	1.14	1.40	
G	0.10		2.54		TYP.
H	0.096	0.134	2.43	3.40	
J	0.011	0.025	0.28	0.64	
K	0.071	0.131	1.80	3.32	
S	0.575	0.625	14.60	15.87	
V	0.042	0.058	1.07	1.47	
W	0.000	0.010	0.00	0.25	

Suggested Solder Pad Layout

Unit:mm



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Conditions	Typ.	Max.	Units
Forward Voltage	V_F	$I_F=20A, T_J=25^{\circ}C$	1.15	1.3	V
		$I_F=20A, T_J=175^{\circ}C$	1.25		V
Reverse Leakage Current	I_R	$V_R=650V, T_J=25^{\circ}C$	0.5	25	μA
		$V_R=650V, T_J=175^{\circ}C$	15		μA
Total Capacitive Charge	Q_C	$V_R=400V$	136		nC
Total capacitance	C	$V_R=0V, f=1MHz$	2530		pF
		$V_R=200V, f=1MHz$	250		pF
		$V_R=400V, f=1MHz$	245		pF
Capacitance Stored Energy	E_C	$V_R=400V$	21		μJ

Thermal characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Operating Junction Temperature Range	T_J	-55		175	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55		175	$^{\circ}C$
Thermal Resistance from Junction to Case	$R_{th_{J-C}}$		0.6		$^{\circ}C/W$

Curve Characteristics

Figure 1. Forward Characteristics

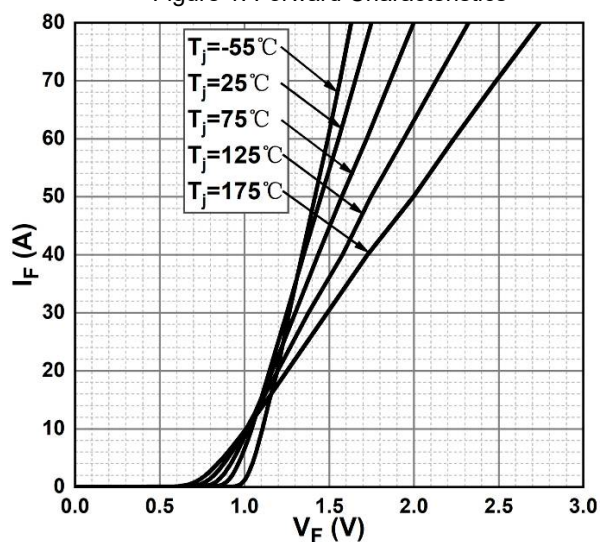


Figure 2. Reverse Characteristics

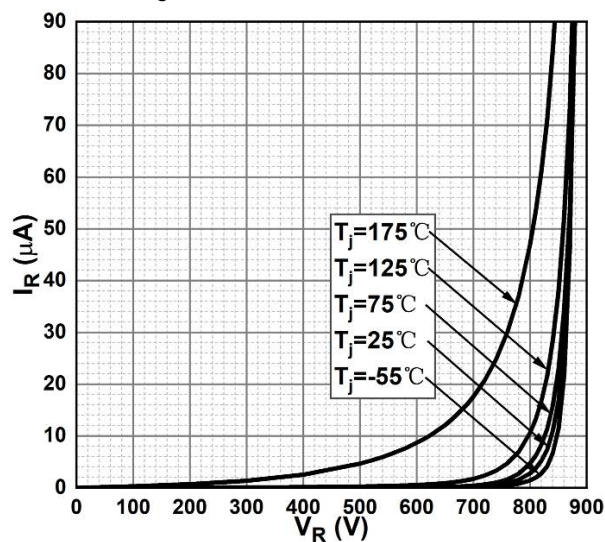


Figure 3. Capacitance vs. Reverse Voltage

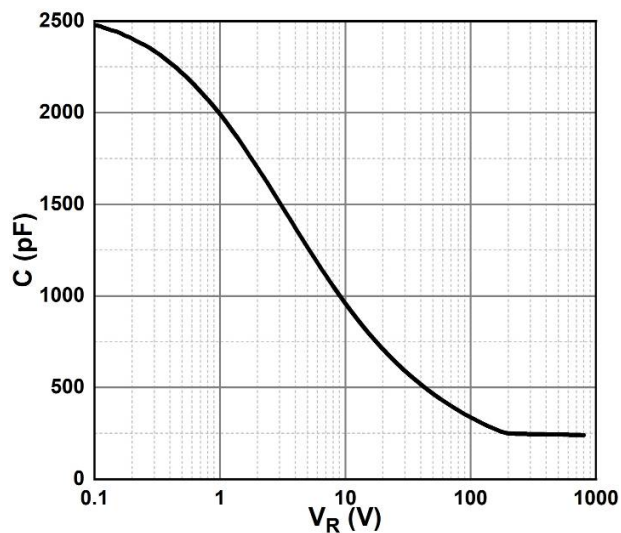


Figure 4. Total Capacitance Charge vs. Reverse Voltage

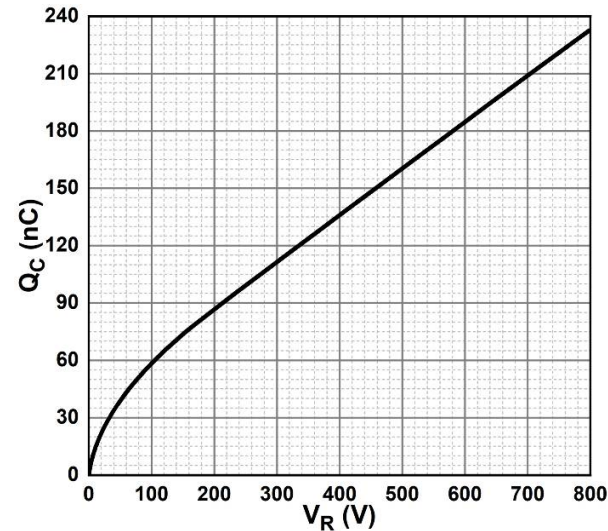


Figure 5. Capacitance Stored Energy

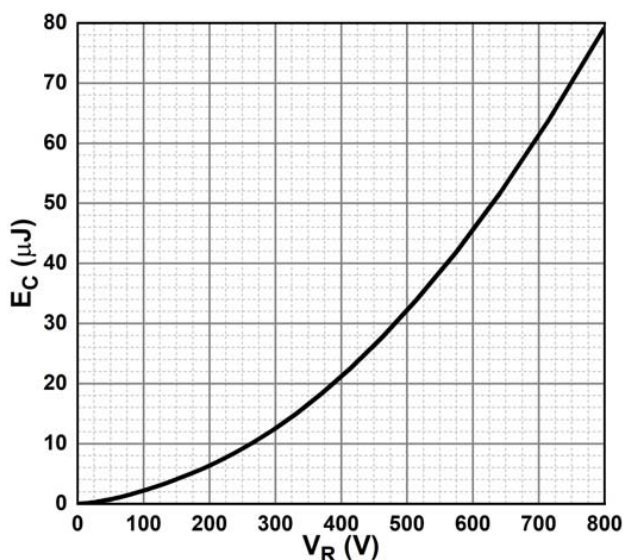
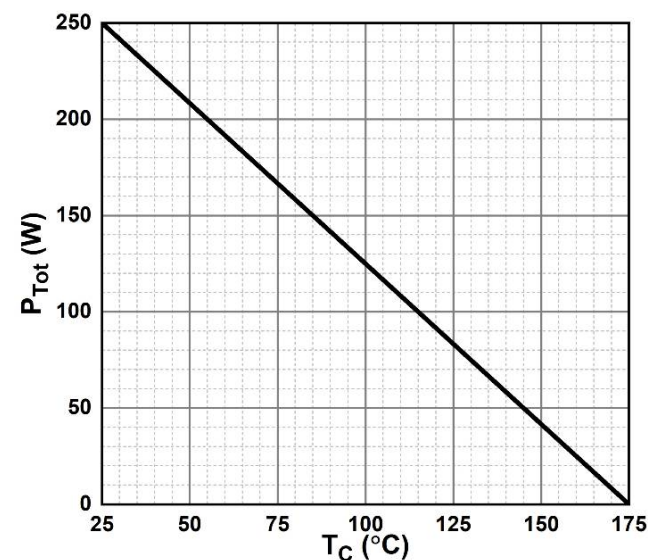


Figure 6. Power Derating



Curve Characteristics

Figure 7. Current Derating

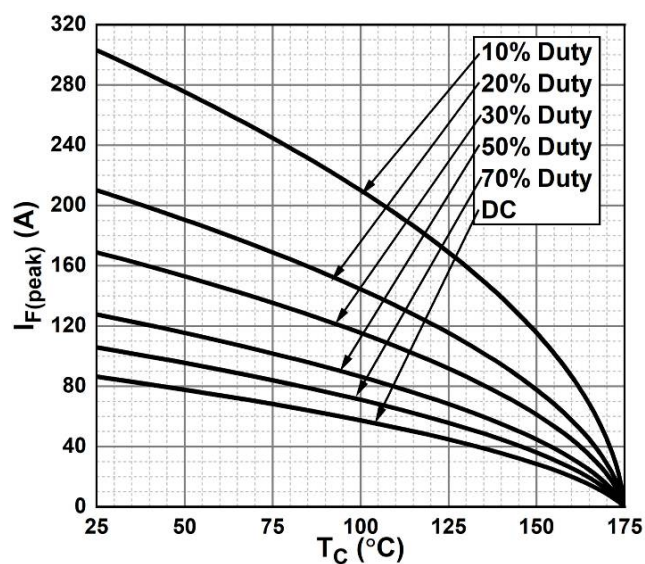
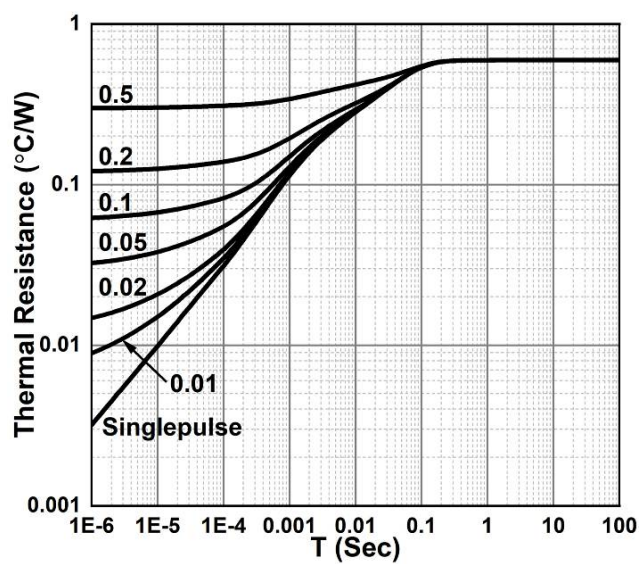


Figure 8. Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 800pcs/Reel

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