Features

- Zero Reverse Recovery Current
- Positive Temperature Coefficient
- High-Speed Switching
- 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

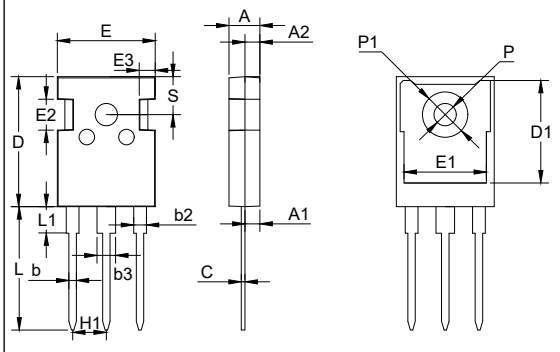
- Temperature-Independent Performance
- Low Switching Loss
- Low Heat Dissipation Requirements

Applications

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

40Amp Silicon Carbide Schottky Barrier Rectifier 650 Volts

TO-247AB



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.189	0.205	4.80	5.20	
A1	0.087	0.103	2.21	2.61	
A2	0.073	0.085	1.85	2.15	
b	0.039	0.055	1.00	1.40	
b2	0.075	0.087	1.91	2.21	
C	0.020	0.028	0.50	0.70	
D	0.815	0.839	20.70	21.30	
D1	0.640	0.663	16.25	16.85	
E	0.610	0.634	15.50	16.10	
E1	0.512	0.535	13.00	13.60	
E2	0.189	0.205	4.80	5.20	
E3	0.091	0.106	2.30	2.70	
L	0.772	0.796	19.62	20.22	
L1	-	0.169	-	4.30	
P	0.134	0.150	3.40	3.80	Φ
P1		0.287	-	7.30	Φ
S	0.242		6.15		TYP
H1	0.214		5.44		TYP
b3	0.110	0.126	2.80	3.20	

Maximum Ratings

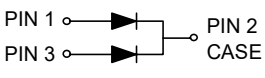
Parameter		Symbol	Rating	Unit
Peak Repetitive Reverse Voltage@ T_j=25°C		V_{RRM}	650	V
Surge Peak Reverse Voltage@ T_j=25°C		V_{RSM}	650	V
DC Reverse Voltage@ T_j=25°C		V_{DC}	650	V
Continuous forward Current	@T_C=25°C	I_F	51/102	A
	@T_C=135°C		23/46	
	@T_C=144°C		20/40	
Non-repetitive Peak Forward Surge Current @T_C=25°C, t_p=10ms, Half Sine Pulse		I_{FSM}	135(3)	A
Power Dissipation	@T_C=25°C	P_D	168/333	W
	@T_C=110°C		73/144	

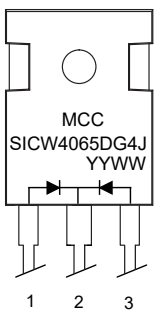
Note:1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

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

2. Per Leg

Internal Structure:





Device Code: SICW4065DG4J
YYWW:Date Code (Year&Week)

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Conditions	Typ.	Max.	Units
Forward Voltage	V_F	I_F=20A, T_J=25°C	1.38	1.60	V
		I_F=20A, T_J=175°C	1.75		V
Reverse Leakage Current	I_R	V_R=650V, T_J=25°C	0.5	25	μA
		V_R=650V, T_J=175°C	5		μA
Total Capacitive Charge	Q_C	V_R=400V	61		nC
Total capacitance	C	V_R=0V, f=1MHz	1150		pF
		V_R=200V, f=1MHz	113		pF
		V_R=400V, f=1MHz	107		pF
Capacitance Stored Energy	E_C	V_R=400V	7.5		μJ

Thermal characteristics

Parameter	Symbol	Min	Typ	Max	Units
Operating Junction Temperature Range	T_J	-55		175	°C
Storage Temperature Range	T_{stg}	-55		175	°C
Thermal Resistance from Junction to Case (Per Leg)	Rth_{J-C}		0.89		°C/W
Thermal Resistance from Junction to Case (Device)	Rth_{J-C}		0.45		°C/W

Curve Characteristics

Fig. 1 - Typical Forward Characteristics

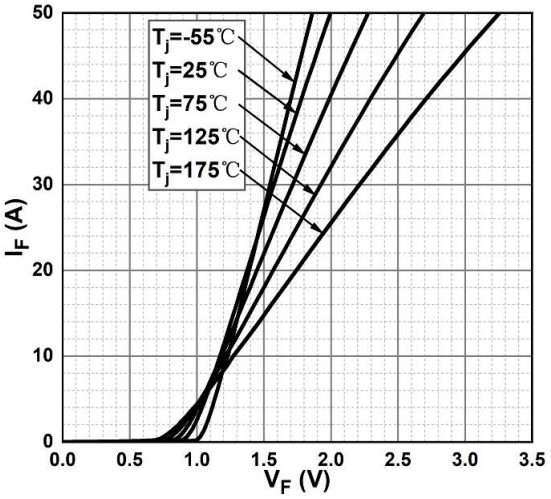


Fig. 2 - Typical Reverse Leakage Characteristics

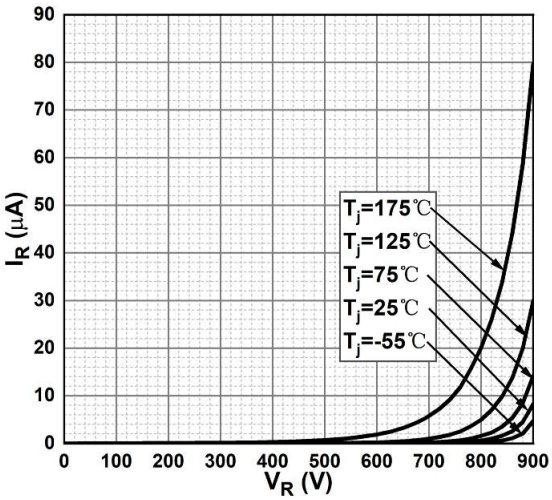


Figure 3. Capacitance vs. Reverse Voltage

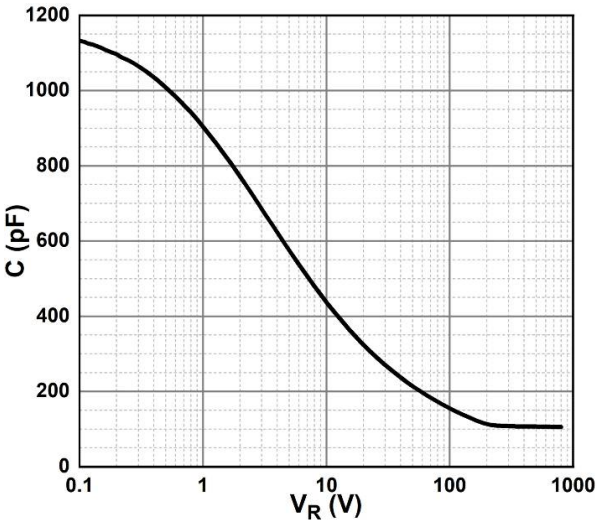


Figure 4. Total Capacitance Charge vs. Reverse Voltage

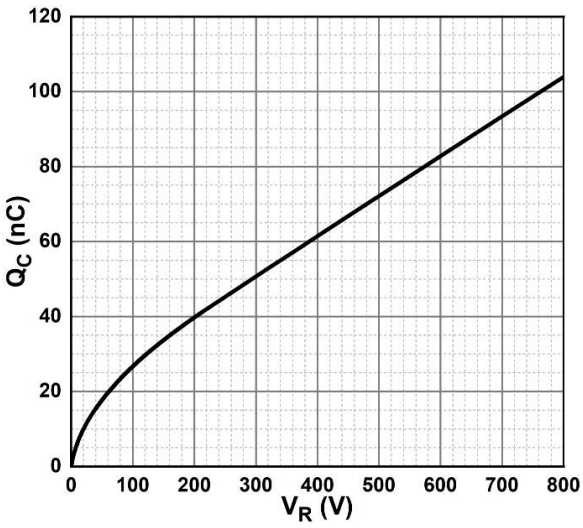


Figure 5. Capacitance Stored Energy

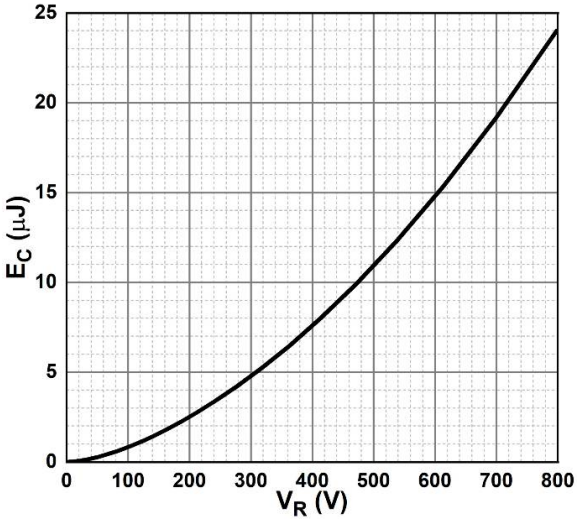
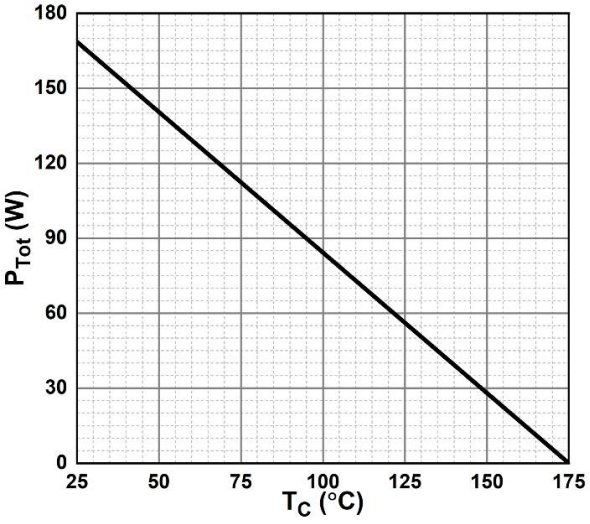


Figure 6. Power Derating



Curve Characteristics

Fig. 7 - Current Derating

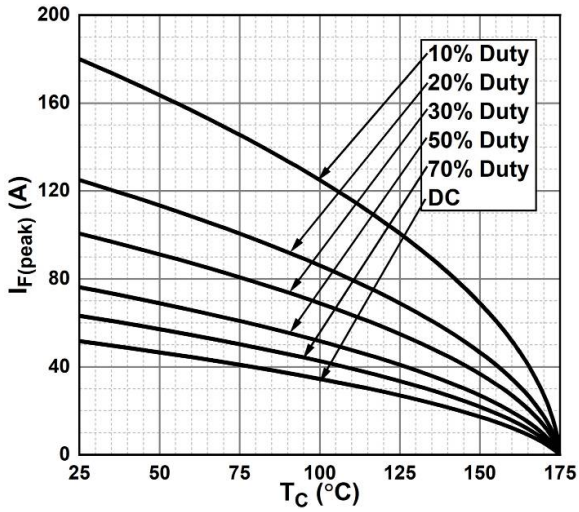
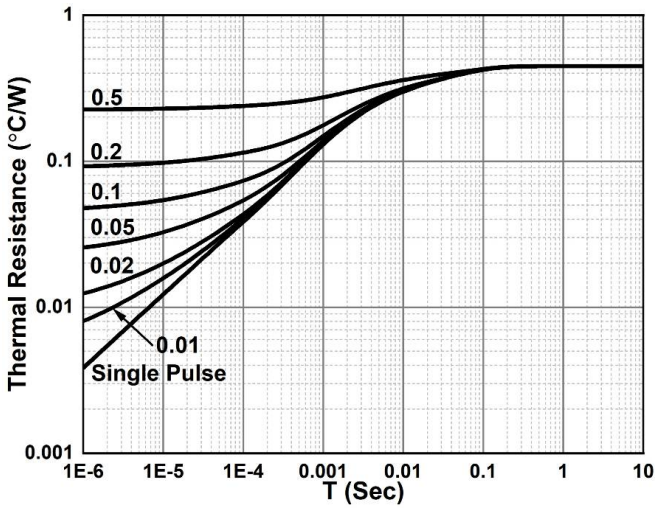


Fig. 8 - Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-BP	Bulk: 30pcs/Tube