

## Features

- Fully Automotive Qualified to AEC-Q101
- Zero Reverse Recovery Current
- Positive Temperature Coefficient
- Maximum working temperature at 175 °C
- 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 switching
- Essentially no switching losses
- Reduction of heat sink requirements

## Applications

- Solar Inverter
- Power Factor Correction
- Motor Drive
- Photovoltaic Inverter

## Maximum Ratings

Parameter	Symbol	Rating	Unit
Peak Repetitive Reverse Voltage@T <sub>j</sub> =25°C	V <sub>RRM</sub>	650	V
Surge Peak Reverse Voltage@T <sub>j</sub> =25°C	V <sub>RSM</sub>	650	V
DC Reverse Voltage@T <sub>j</sub> =25°C	V <sub>DC</sub>	650	V
Continuous forward Current @T <sub>c</sub> =25°C	I <sub>F</sub>	5.5	A
Continuous forward Current @T <sub>c</sub> =135°C	I <sub>F</sub>	2.4	A
Continuous forward Current @T <sub>c</sub> =163°C	I <sub>F</sub>	1.0	A
Non-repetitive Peak Forward Surge Current @T <sub>c</sub> =25°C, t <sub>p</sub> =10ms, Half Sine Pulse	I <sub>FSM</sub>	18	A
Repetitive peak forward surge current @ T <sub>c</sub> =25°C, tp=10ms, Half Sine Wave	I <sub>FRM</sub>	10	A
Power Dissipation @T <sub>c</sub> =25°C	P <sub>D</sub>	16.4	W
Power Dissipation @T <sub>c</sub> =110°C	P <sub>D</sub>	7.1	W
i <sup>2</sup> t Value@ T <sub>c</sub> =25°C ,tp=10ms	∫i <sup>2</sup> dt	1.62	A <sup>2</sup> S

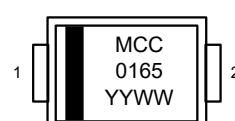
### Note:

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

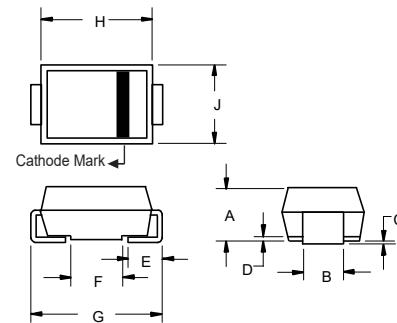


## Device Marking:



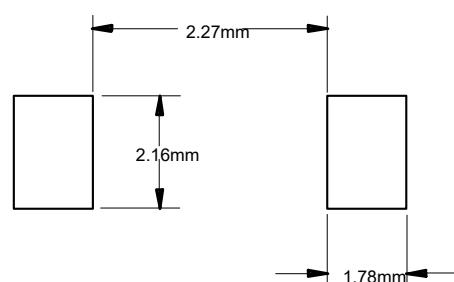
# 1 Amp Silicon Carbide Schottky Diode 650 Volts

## SMA (DO-214AC)



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.075	0.096	1.90	2.44	
B	0.050	0.064	1.27	1.63	
C	0.002	0.008	0.051	0.203	
D	---	0.020	---	0.51	
E	0.030	0.060	0.76	1.52	
F	0.065	0.091	1.65	2.32	
G	0.189	0.220	4.80	5.59	
H	0.157	0.187	4.00	4.75	
J	0.090	0.115	2.25	2.92	

## SUGGESTED SOLDER PAD LAYOUT



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Conditions	Typ.	Max.	Units
Forward Voltage	$V_F$	$I_F=1A, T_J=25^\circ C$	1.13	1.30	V
		$I_F=1A, T_J=175^\circ C$	1.20		V
Reverse Leakage Current	$I_R$	$V_R=650V, T_J=25^\circ C$	0.02	0.5	$\mu A$
		$V_R=650V, T_J=175^\circ C$	0.1		$\mu A$
Total Capacitive Charge	$Q_C$	$V_R=400V$	8.3		nC
Total capacitance	C	$V_R=0V, f=1MHz$	142		pF
		$V_R=200V, f=1MHz$	15.7		pF
		$V_R=400V, f=1MHz$	15.3		pF
Capacitance Stored Energy	$E_C$	$V_R=400V$	1.30		$\mu J$

**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	$R_{thJ-C}$		9.12		°C/W
Thermal resistance, junction to ambient	$R_{thJ-A}$		90		°C/W

## Curve Characteristics

Figure 1. Forward Characteristics

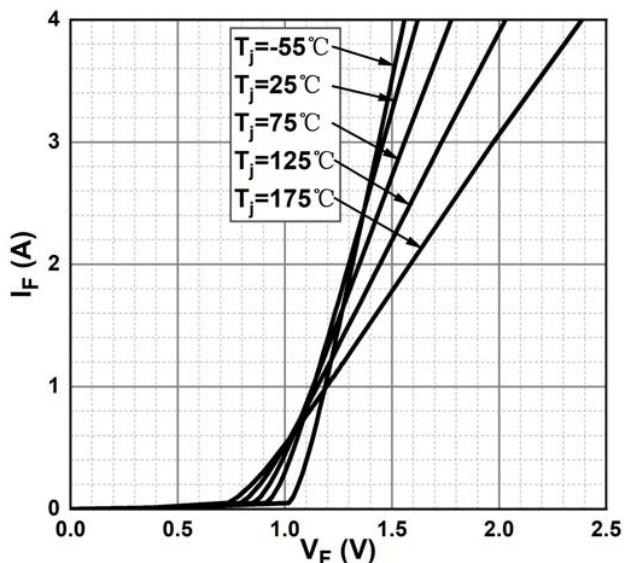


Figure 2. Reverse Characteristics

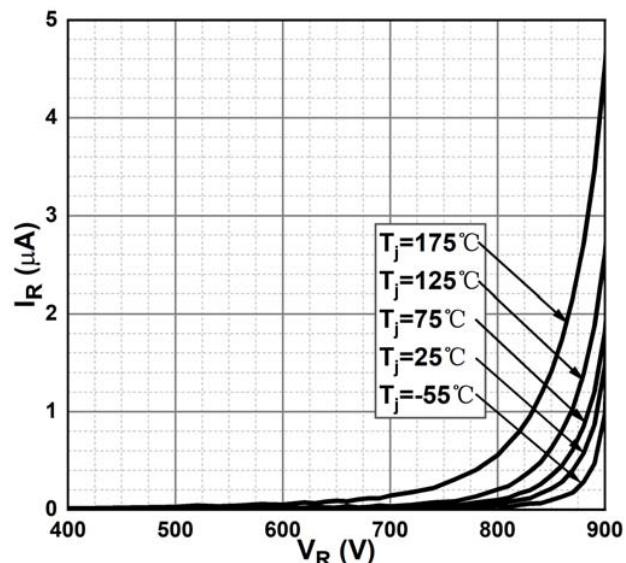


Figure 3. Capacitance vs. Reverse Voltage

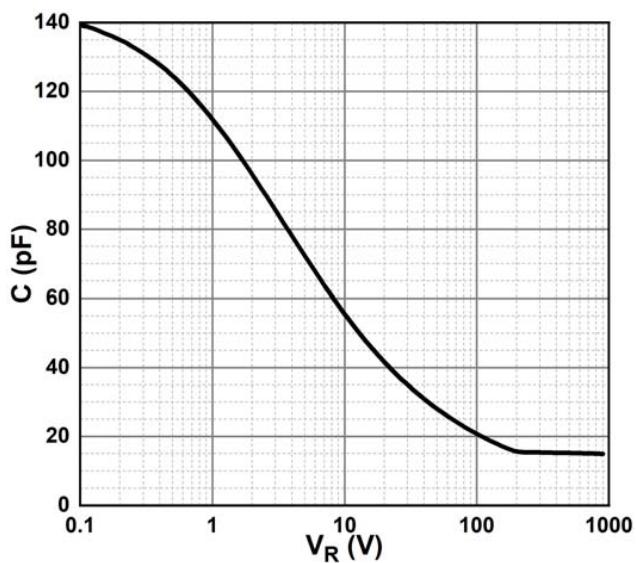


Figure 4. Total Capacitance Charge vs. Reverse Voltage

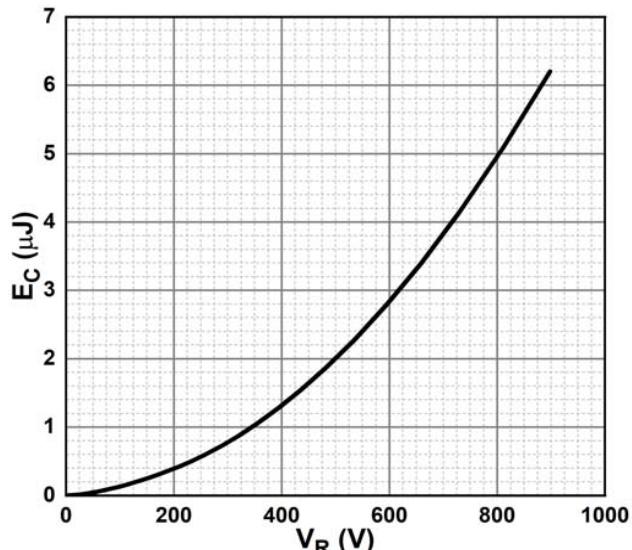
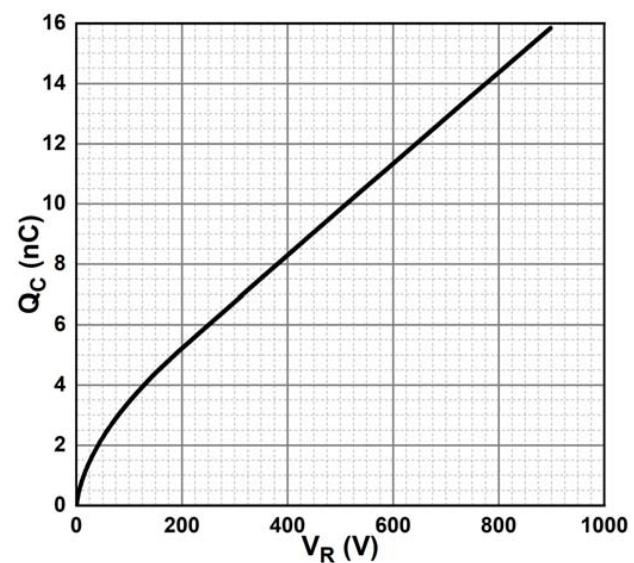
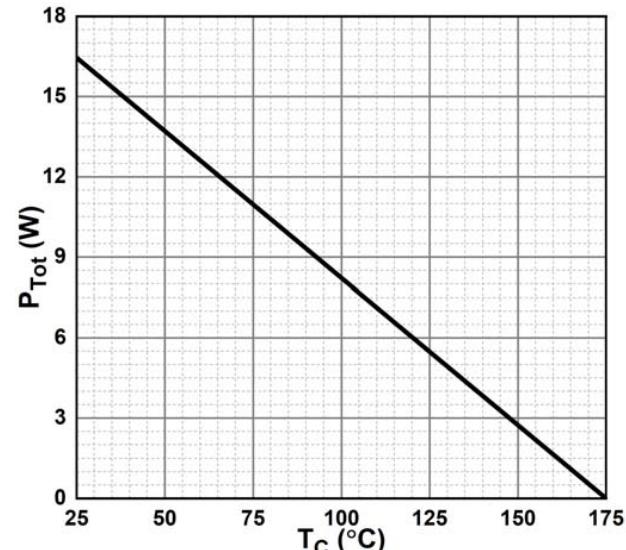


Figure 6. Power Derating



## Curve Characteristics

Figure 7. Current Derating

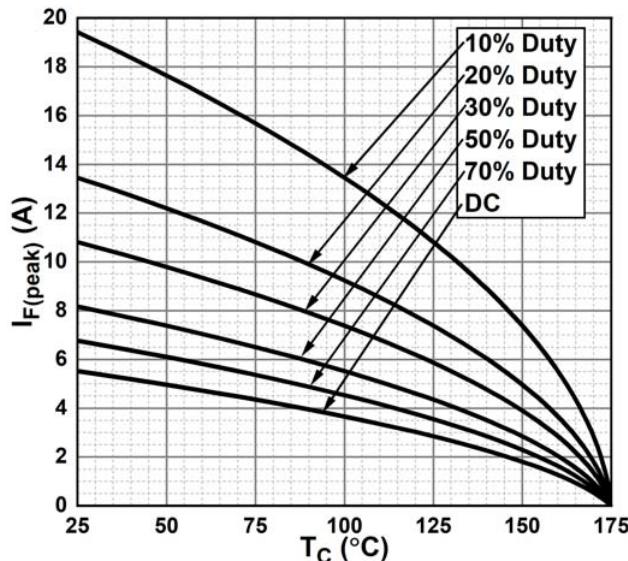
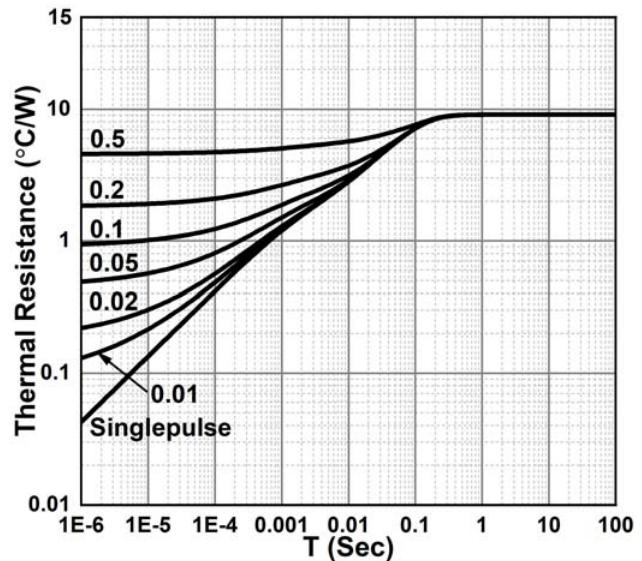


Figure 8. Transient Thermal Impedance



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:7.5Kpcs/Reel

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