

## Features

- Zero Reverse Recovery Current
- Merged PiN Schottky (MPS) Diodes Technologies
- 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 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

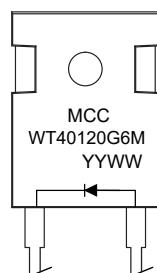
Parameter	Symbol	Rating	Unit
Peak Repetitive Reverse Voltage@ $T_j=25^\circ\text{C}$	$V_{RRM}$	1200	V
Surge Peak Reverse Voltage@ $T_j=25^\circ\text{C}$	$V_{RSM}$	1200	V
DC Reverse Voltage@ $T_j=25^\circ\text{C}$	$V_{DC}$	1200	V
Continuous forward Current	$I_F$	90	A
		42	
		40	
Non-repetitive Peak Forward Surge Current@ $T_c=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	$I_{FSM}$	330	A
Power Dissipation	$P_D$	348	W
		151	
$i^2t$ Value@ $T_c=25^\circ\text{C}$ , $t_p=10\text{ms}$	$\int i^2 dt$	544	$\text{A}^2\text{s}$

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:

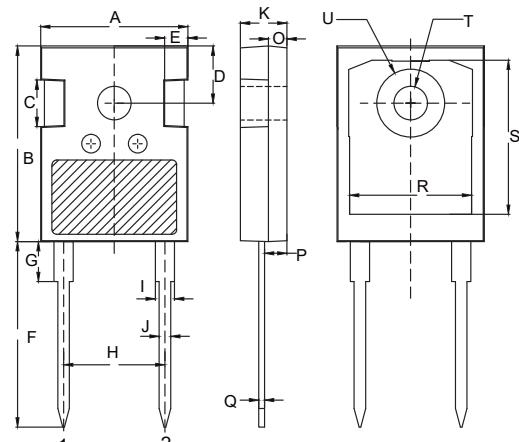
PIN 1 → CASE  
 PIN 2 → CASE



Device Code:WT40120G6M  
 YYWW: Date Code (Year & Week)

# 40 Amp Silicon Carbide Schottky Rectifier 1200 Volts

TO-247AD



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.610	0.663	15.50	16.85	
B	0.815	0.839	20.70	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	0.772	0.796	19.62	20.22	
G	-----	0.169	-----	4.30	
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	$V_F$	$I_F=40A, T_J=25^\circ C$	1.46	1.65	V
		$I_F=40A, T_J=175^\circ C$	2.10		V
Reverse Leakage Current	$I_R$	$V_R=1200V, T_J=25^\circ C$	1.0	25	$\mu A$
		$V_R=1200V, T_J=175^\circ C$	40		$\mu A$
Total Capacitive Charge	$Q_C$	$V_R=800V$	197		nC
Total capacitance	C	$V_R=0V, f=1MHz$	2770		pF
		$V_R=400V, f=1MHz$	185		pF
		$V_R=800V, f=1MHz$	134		pF
Capacitance Stored Energy	$E_C$	$V_R=800V$	56		$\mu J$

**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	$R_{thJ-C}$		0.43		°C/W

## Curve Characteristics

Figure 1. Forward Characteristics

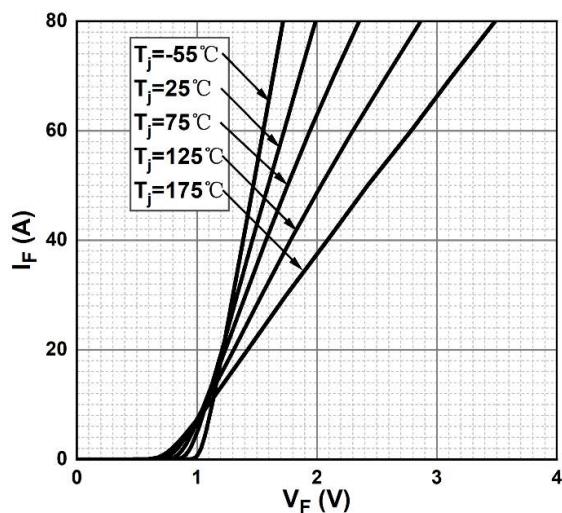


Figure 2. Reverse Characteristics

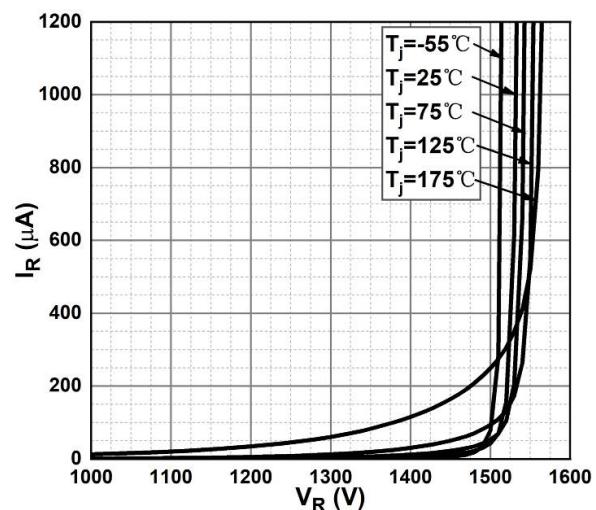


Figure 3. Capacitance vs. Reverse Voltage

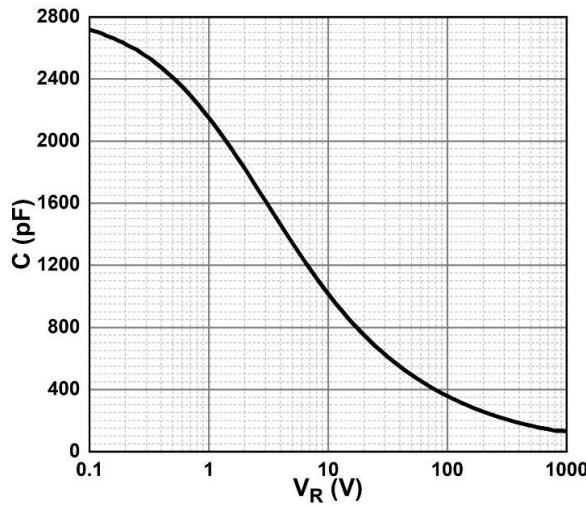


Figure 4. Total Capacitance Charge vs. Reverse Voltage

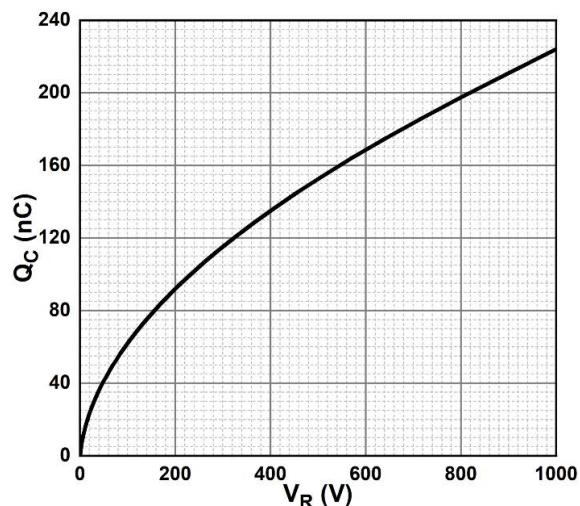


Figure 5. Capacitance Stored Energy

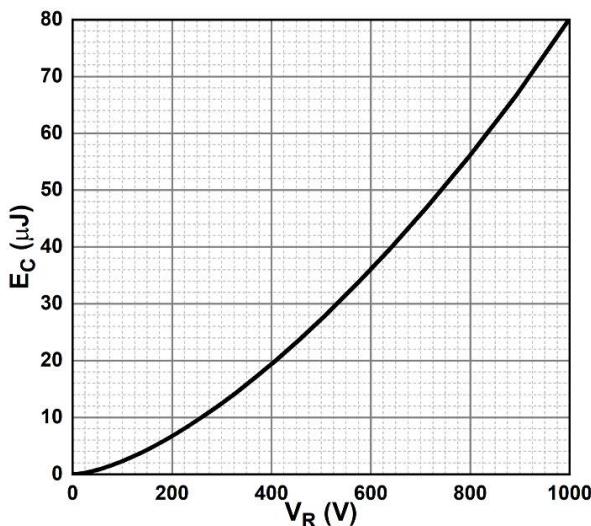
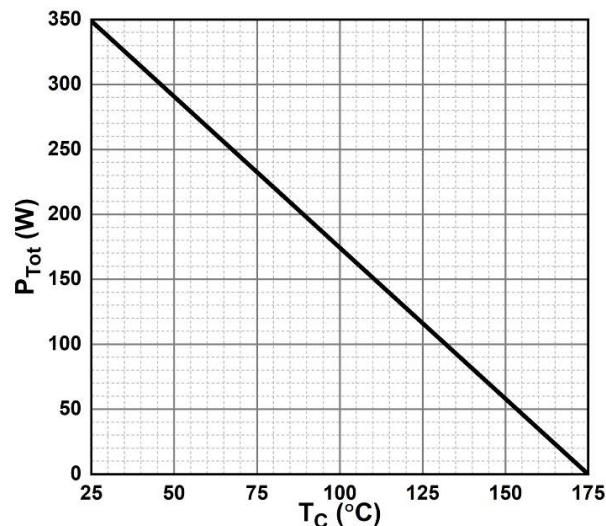


Figure 6. Power Derating



## Curve Characteristics

Fig. 7 - Current Derating

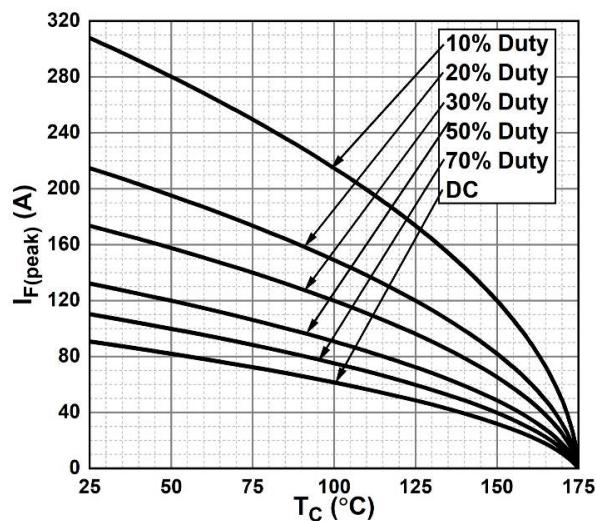
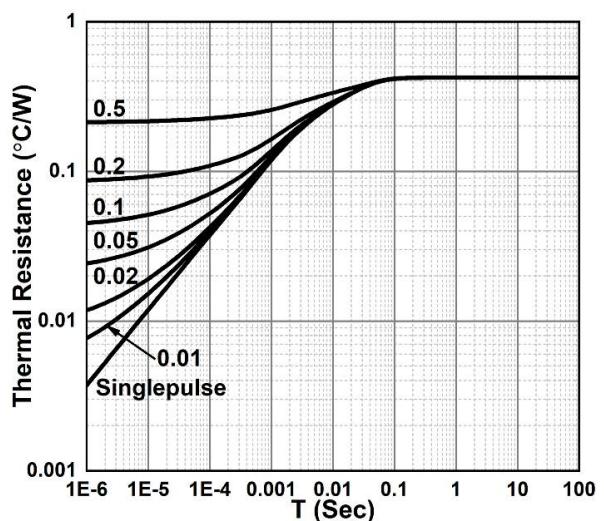


Fig. 8 - Transient Thermal Impedance



## Ordering Information

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

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