

## Features

- Zero Reverse Recovery Current
- Positive Temperature Coefficient
- High-Speed Switching
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)

## Benefits

- Temperature-Independent Performance
- Essentially No Switching Loss
- Higher Efficiency
- Reduced EMI
- Reduction of Heat Sink Requirements

## Applications

- Switching Power Supply
- Power Factor Correction
- Solar Inverter

## Maximum Ratings

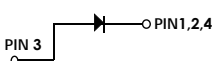
- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 2.5°C/W Junction to Case

MCC Part Number	Device Marking
SICU0460B	SICU0460B

Peak Repetitive Reverse Voltage	$V_{RRM}$	650V	
Surge Peak Reverse Voltage	$V_{RSM}$	650V	
DC Reverse Voltage	$V_{DC}$	650V	
Average Forward Current	$I_F$	4A	$T_J=156^\circ\text{C}$
Peak Forward Surge Current	$I_{FSM}$	34A	$T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse
Repetitive Peak Forward Current	$I_{FRM}$	20A	$T_C=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse
Power Dissipation	$P_D$	60W	$T_C=25^\circ\text{C}$

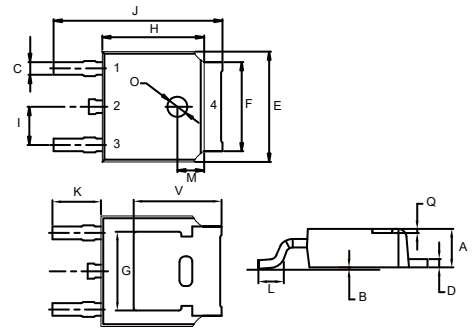
Note:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7a.

## Internal Structure:



# 4 Amp Silicon Carbide Schottky Barrier Rectifier 650 Volts

## DPAK



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

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

Parameter	Symbol	Conditions	Typ.	Max.	Units
Forward Voltage	$V_F$	$I_F=4A, T_J=25^\circ C$	1.6	1.8	V
		$I_F=4A, T_J=175^\circ C$	2	2.5	V
Reverse Leakage Current	$I_R$	$V_R=650V, T_J=25^\circ C$	2	15	$\mu A$
		$V_R=650V, T_J=175^\circ C$	15	100	$\mu A$
Total Capacitive Charge	$Q_C$	$V_R=400V$	12.1		nC
Total capacitance	C	$V_R=0V, f=1MHz$	200		pF
		$V_R=200V, f=1MHz$	23.8		pF
		$V_R=400V, f=1MHz$	20.9		pF
Capacitance Stored Energy	$E_C$	$V_R=400V$	1.92		$\mu J$

**Curve Characteristics**

Fig. 1 - Typical Instantaneous Forward Characteristics

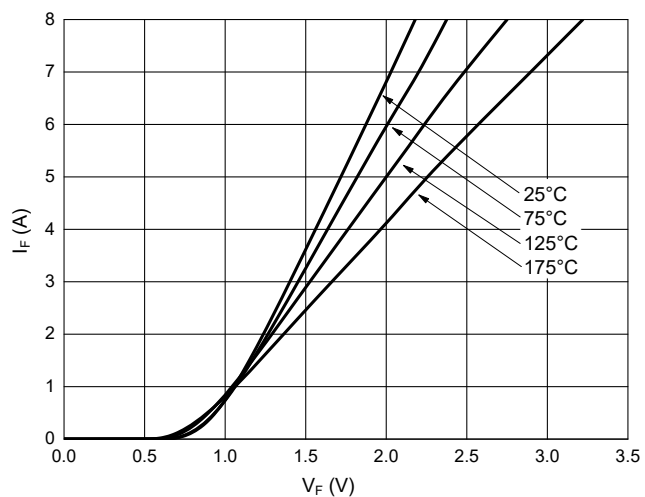
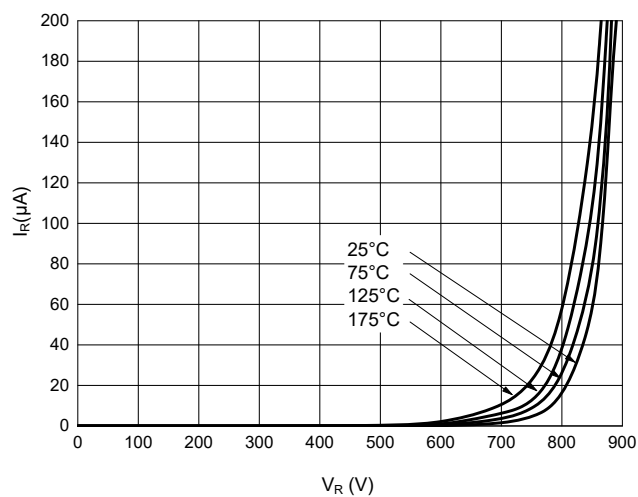


Fig. 2 - Typical Reverse Leakage Characteristics



Curve Characteristics

Fig. 3 - Capacitance vs Reverse Voltage

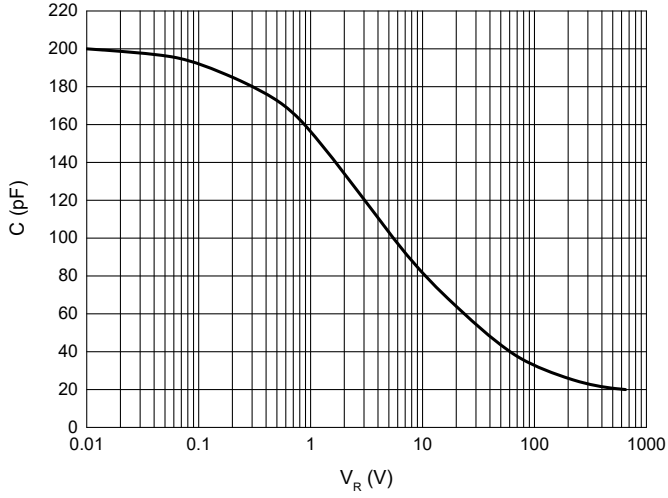


Fig. 4 - Capacitive Charge vs Reverse Voltage

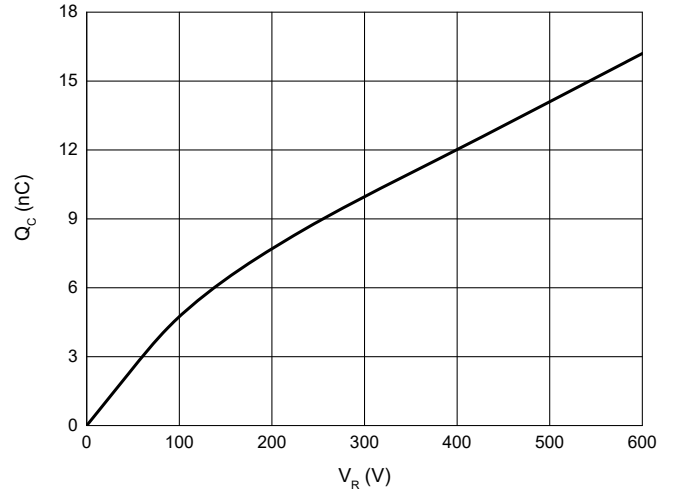


Fig. 5 - Capacitance Stored Energy

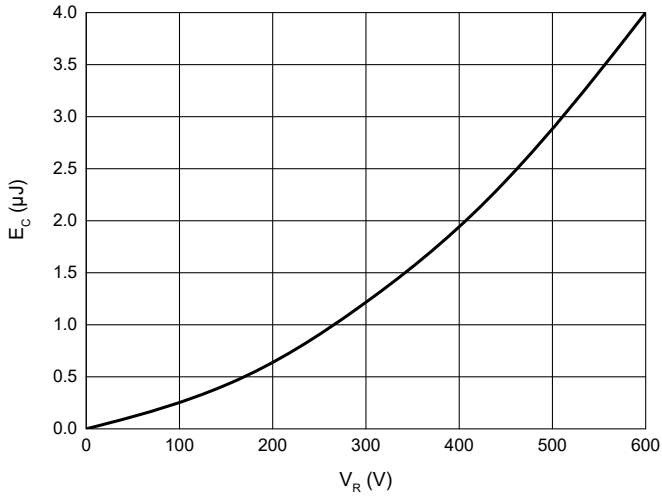


Fig. 6 - Power Derating

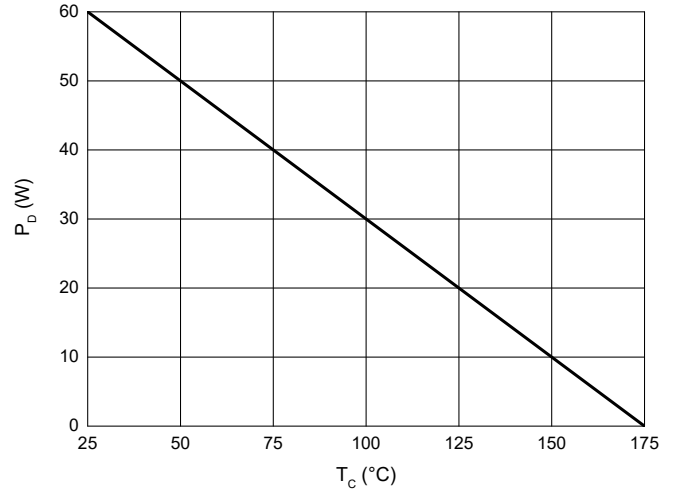


Fig. 7 - Current Derating

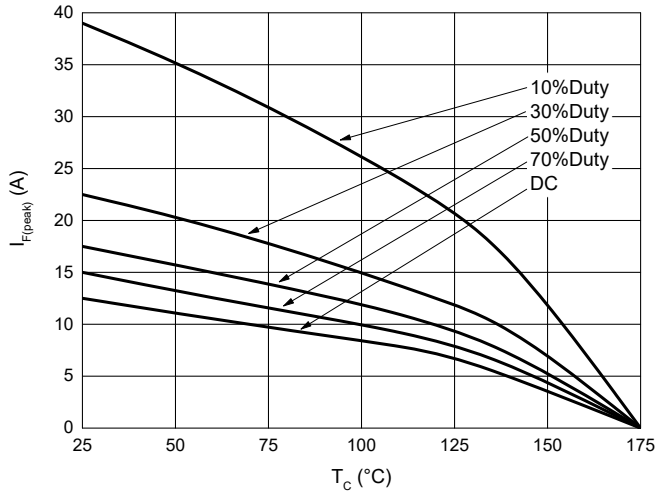
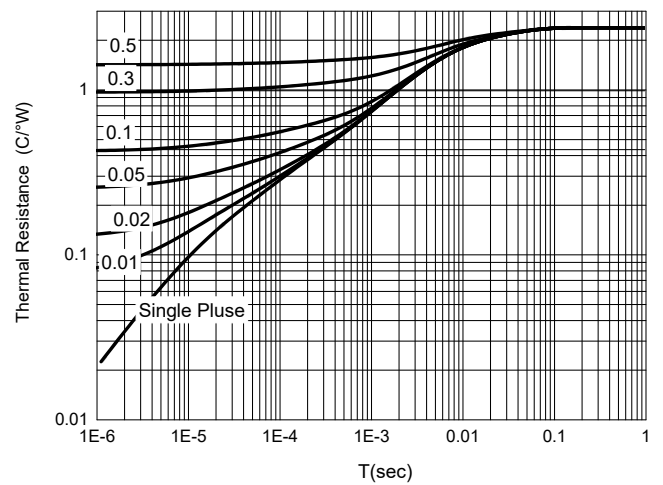


Fig. 8 - Transient Thermal Impedance



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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