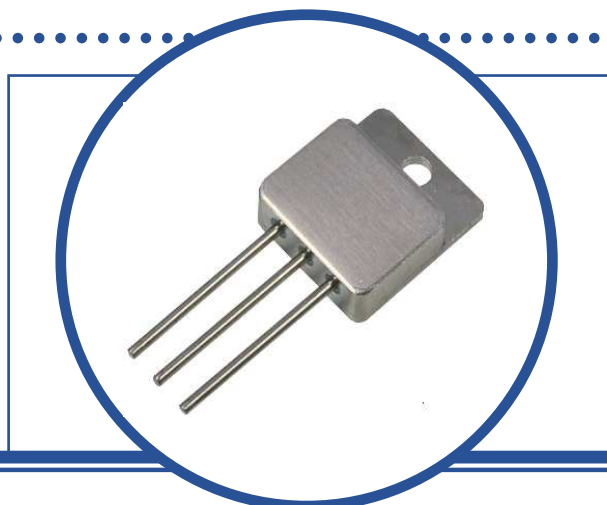


SILICON CARBIDE POWER SCHOTTKY RECTIFIER DIODE

SML020DH12

- 1200V, 20A (2x10A) Rectifier Diodes
- High Temperature Operation $T_j = 200^\circ\text{C}$
- Effective Zero Reverse and Forward Recovery
- High Frequency Operation
- High Speed Low Loss Switching



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{RRM}	Repetitive Peak Reverse Breakdown Voltage	1200V
V_{RSM}	Surge Peak Reverse Voltage	1200V
V_{DC}	DC Blocking Voltage	1200V
$I_F(AVG)$	Average Forward Current	20A
$I_F(PEAK)$	Peak Forward Surge Current, $T_C = 125^\circ\text{C}$	50A
P_D	Power Dissipation (per leg)	116W
T_j	Junction Temperature Range	-55 to $+200^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55 to $+225^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	1.5	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS (Per Die, $T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_F^{(1)}$	Forward Voltage	$I_F = 10\text{A}$ $T_C = 175^\circ\text{C}$		1.6 2.5	1.8 3.0	V
I_R	Reverse Current	$V_R = V_{RRM}$ $T_C = 175^\circ\text{C}$		10 20	200 1000	μA

DYNAMIC CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

$Q_C^{(2)}$	Total Capacitive Charge	$I_F = 10\text{A}$ $di/dt = 500\text{A}/\mu\text{s}$	$V_R = 1200\text{V}$ $T_j = 25^\circ\text{C}$		61	nC
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Notes

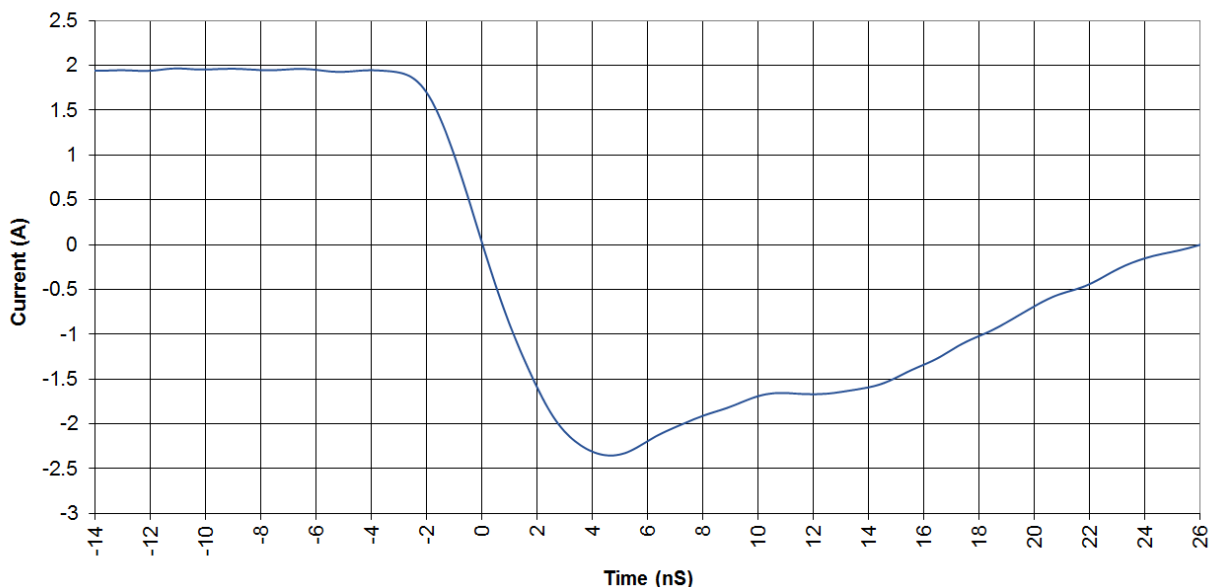
- (1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$
(2) By Design. Not a production test.

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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Equivalent Reverse Recovery Time ⁽³⁾

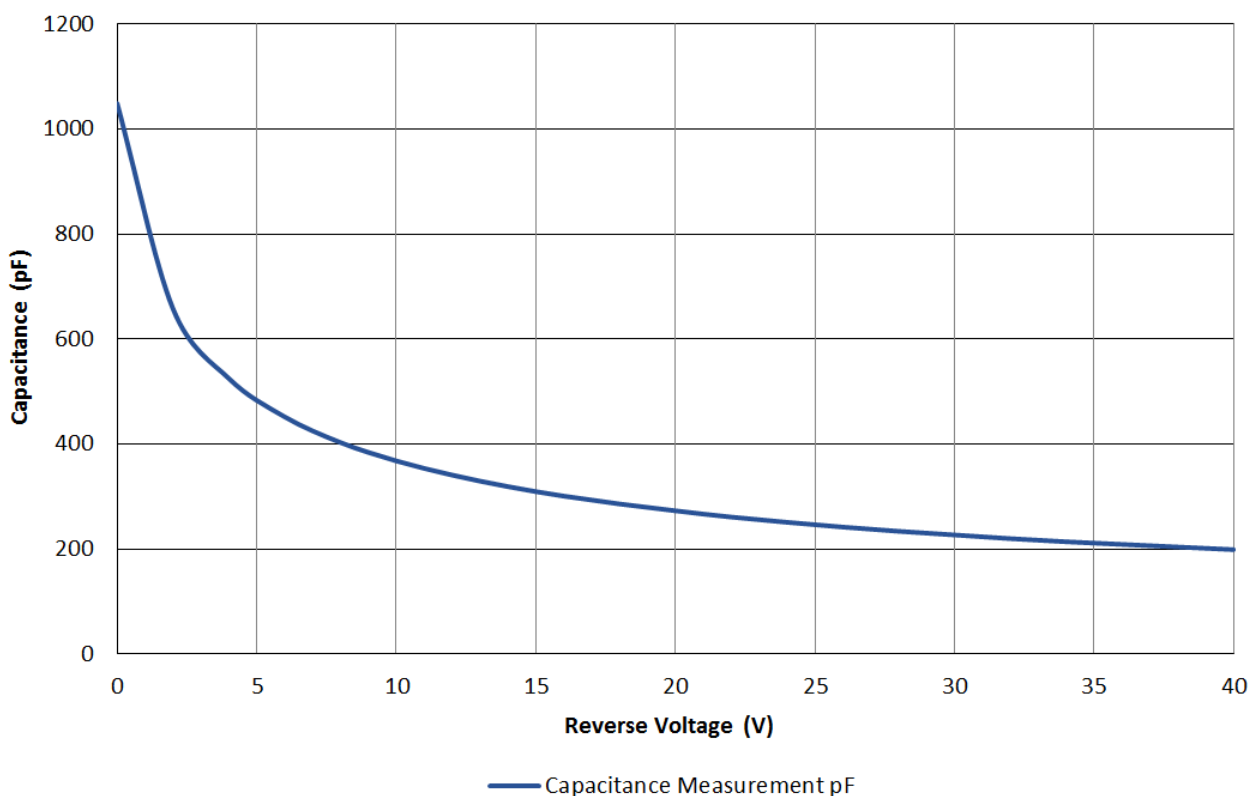
$I_F=2A$, $V_R = 140V$, $I_{RR}=250mA$



Notes

- (3) SiC Schottky Diode, no minority carrier recombination thus zero reverse recovery. Recovery time shown is due to a small junction capacitance charge and is independent of junction temperature

Capacitance vs Reverse Voltage

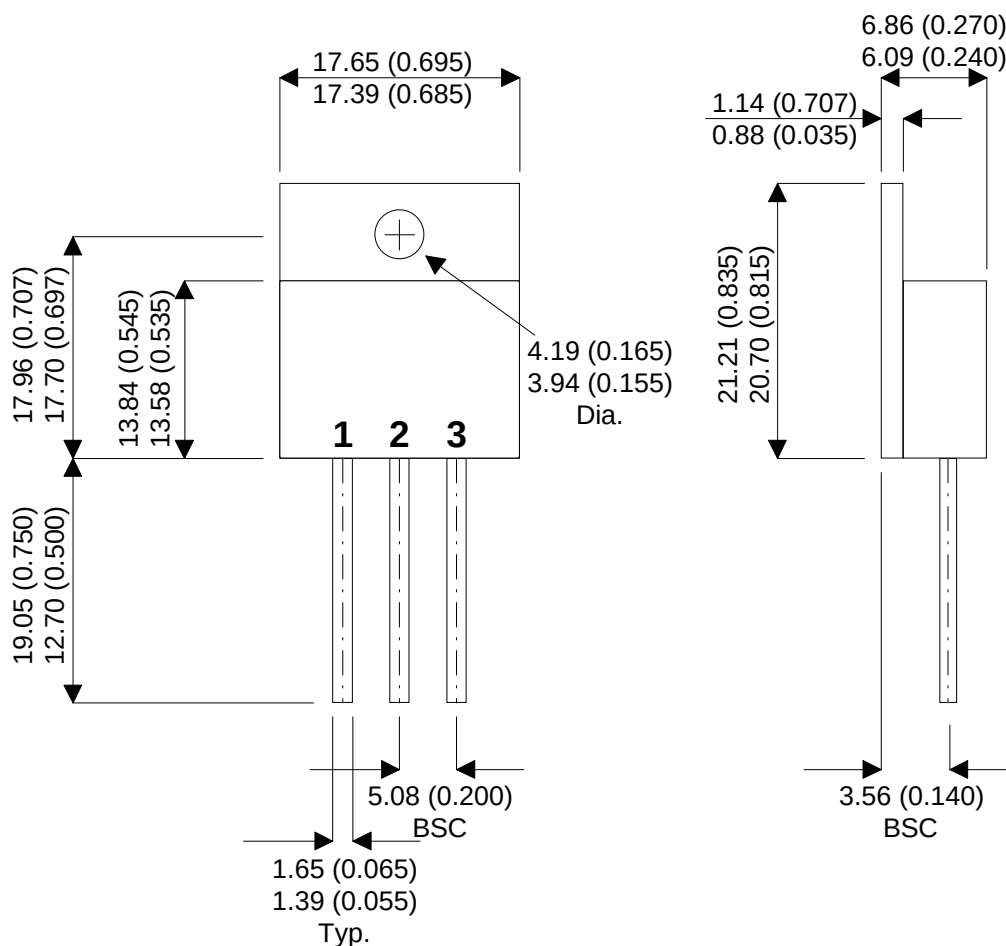


SILICON CARBIDE POWER SCHOTTKY RECTIFIER DIODE

SML020DH12

MECHANICAL DATA

Dimensions in mm (Inches)



TO258 (TO-258AA)

Pin 1 – Anode

Pin 2 - Cathode

Pin 3 – Anode

