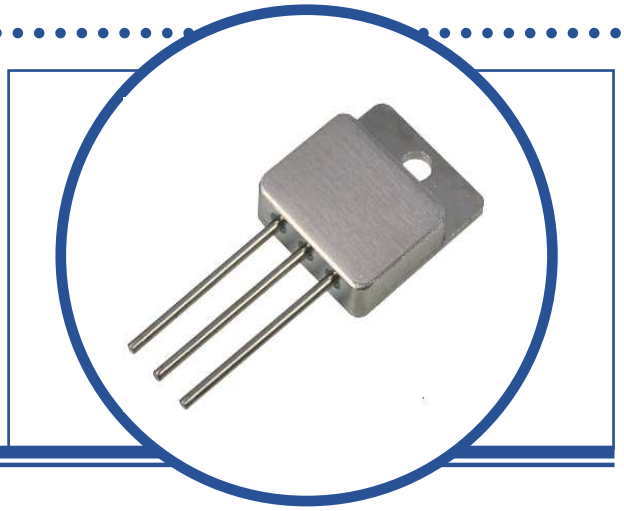
SILICON CARBIDE POWER SCHOTTKY RECTIFIER DIODE

TT electronics
Semelab Limited

SML020DH12

- 1200V, 20A (2x10A) Rectifier Diodes
- High Temperature Operation Tj = 200°C
- Effective Zero Reverse and Forward Recovery
- High Frequency Operation
- High Speed Low Loss Switching



ABSOLUTE MAXIMUM RATINGS (T_C = 25°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°C	50A
P_D	Power Dissipation (per leg)	116W
T_J	Junction Temperature Range	-55 to +200°C
T_{stg}	Storage Temperature Range	-55 to +225°C

THERMAL PROPERTIES

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

ELECTRICAL CHARACTERISTICS (Per Die, T_C = 25°C unless otherwise stated)

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

DYNAMIC CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Q_C (2)	Total Capacitative Charge	I_F = 10A di/dt = 500A/µs	V_R = 1200V T_J = 25°C		61		nC

Notes
(1) Pulse Width ≤ 380us, δ ≤ 2%
(2) By Design. Not a production test.

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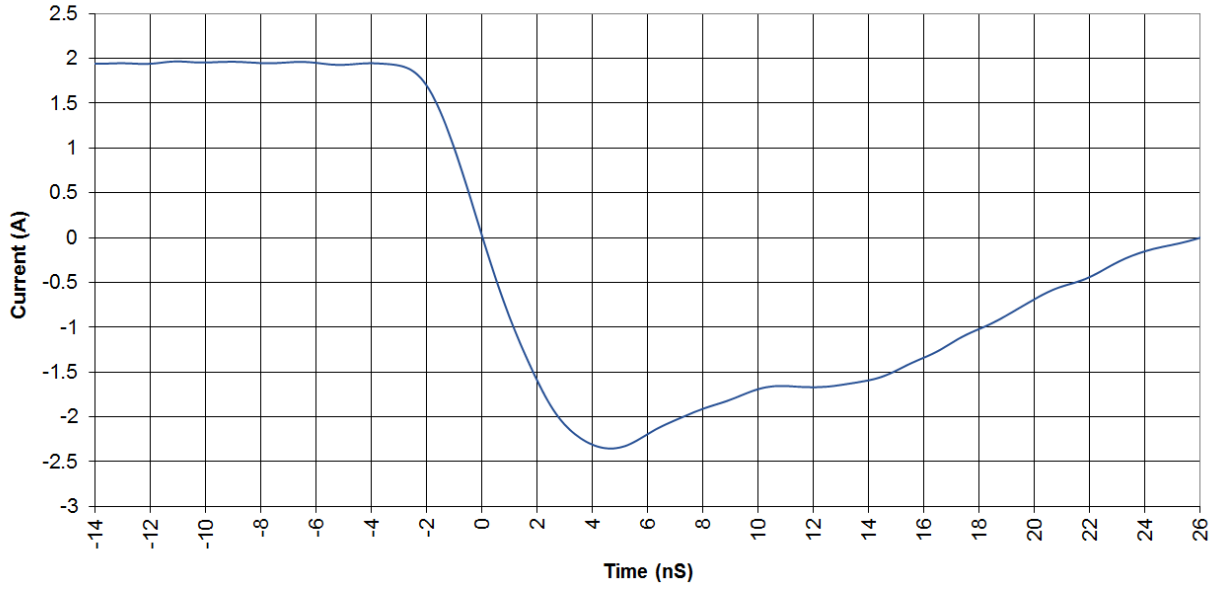
Equivalent Reverse Recovery Time (3)

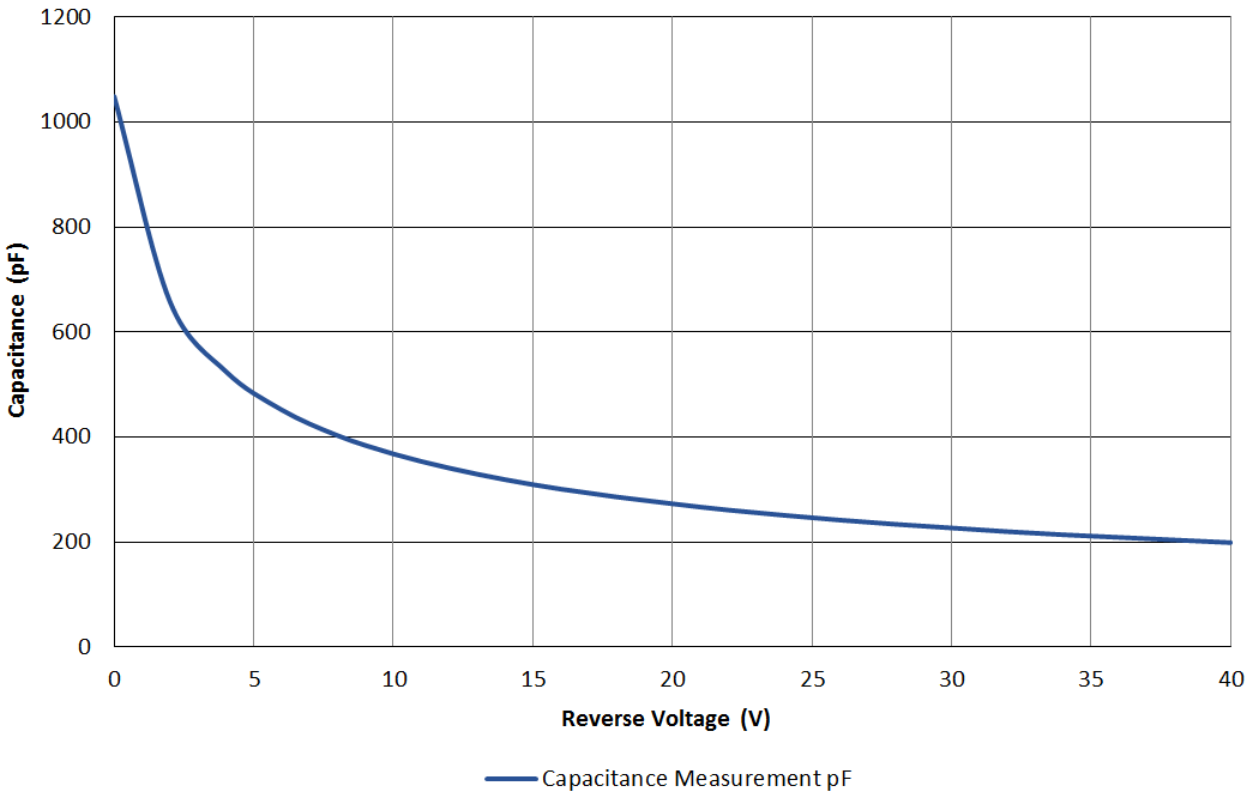
I_F=2A, V_R = 140V, I_{RR}=250mA



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



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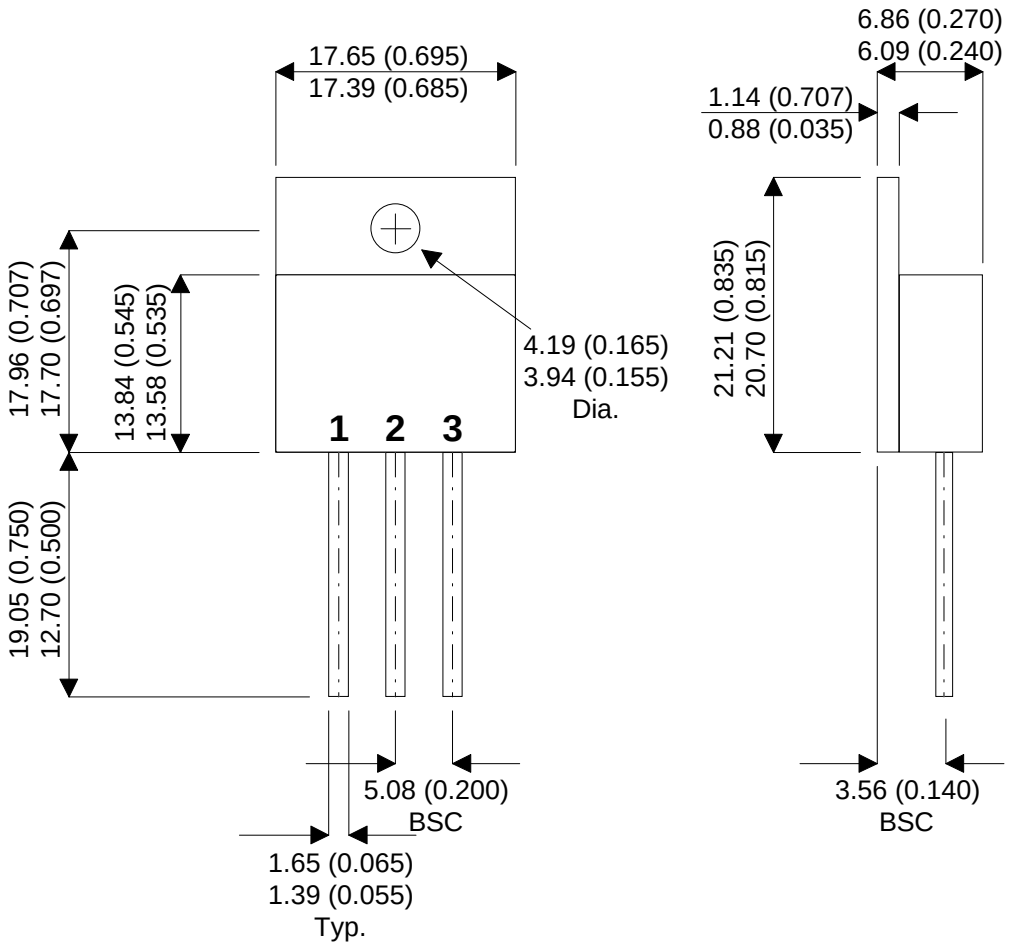
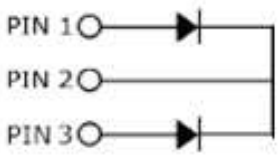
MECHANICAL DATA

Dimensions in mm (Inches)



TO258 (TO-258AA)

Pin 1 – Anode Pin 2 - Cathode Pin 3 – Anode



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