

TECHNICAL DATA
DATA SHEET 5508, REV. -**HERMETIC SILICON CARBIDE MOSFET WITH SiC DIODE****DESCRIPTION:** A 1200 VOLT, 15 AMP POWER SILICON CARBIDE N-CHANNEL MOSFET AND SiC DIODE IN AN ISOLATED HERMETIC TO-257 PACKAGE, AVAILABLE SCREENED TO ANY REQUIRED LEVEL**FEATURES:**

- 160m Ω typical on-resistance
- Fast switching and no reverse recovery
- Ceramic seals
- Low Vf silicon carbide Schottky barrier diode included in parallel with body diode

MAXIMUM RATINGSALL RATINGS ARE @ T_C = 25 °C UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX	UNITS
DRAIN-SOURCE VOLTAGE	V _{DSS}	1200	V
CONTINUOUS DRAIN CURRENT	I _D	15	A
CONTINUOUS DRAIN CURRENT, T _C = 100 °C	I _D	9	A
PULSED DRAIN CURRENT (t ≤ 10 μ s, dc ≤ 1%)	I _{D, pulse}	40	A
GATE - SOURCE VOLTAGE	V _{GSS}	- 5 to +20	V
MAXIMUM POWER DISSIPATION, T _C = 25 °C,	P _d	46	W
MAXIMUM THERMAL RESISTANCE	R _{θJC}	2.7	°C/W
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE	Top, Tstg	-55 to 150	°C

ELECTRICAL CHARACTERISTICSALL RATINGS ARE @ T_C = 25 °C UNLESS OTHERWISE SPECIFIED

CHARACTERISTIC	MIN	TYP	MAX	UNITS
DRAIN - SOURCE BREAKDOWN VOLTAGE (VGS = 0V, ID = 0.25mA)	1200			V
ZERO GATE VOLTAGE DRAIN CURRENT (VDS = 1200V, VGS = 0V)			400	μ A
GATE - SOURCE LEAKAGE CURRENT (VGS = +20V, VDS = 0V)			100	nA
GATE - SOURCE LEAKAGE CURRENT (VGS = -5V, VDS = 0V)			-100	nA
GATE THRESHOLD VOLTAGE (VDS = VGS, ID = 2.5mA)	2		4	V
STATIC DRAIN - SOURCE ON - STATE RESISTANCE (VGS = 20V, ID = 10A)		160	200	m Ω
TRANSCONDUCTANCE (VDS = 20V, ID = 10A)		4.8		S
INPUT CAPACITANCE (VGS = 0V, VDS = 1000V, f = 1MHz)		525		pF
OUTPUT CAPACITANCE (VGS = 0V, VDS = 1000V, f = 1MHz)		90		pF

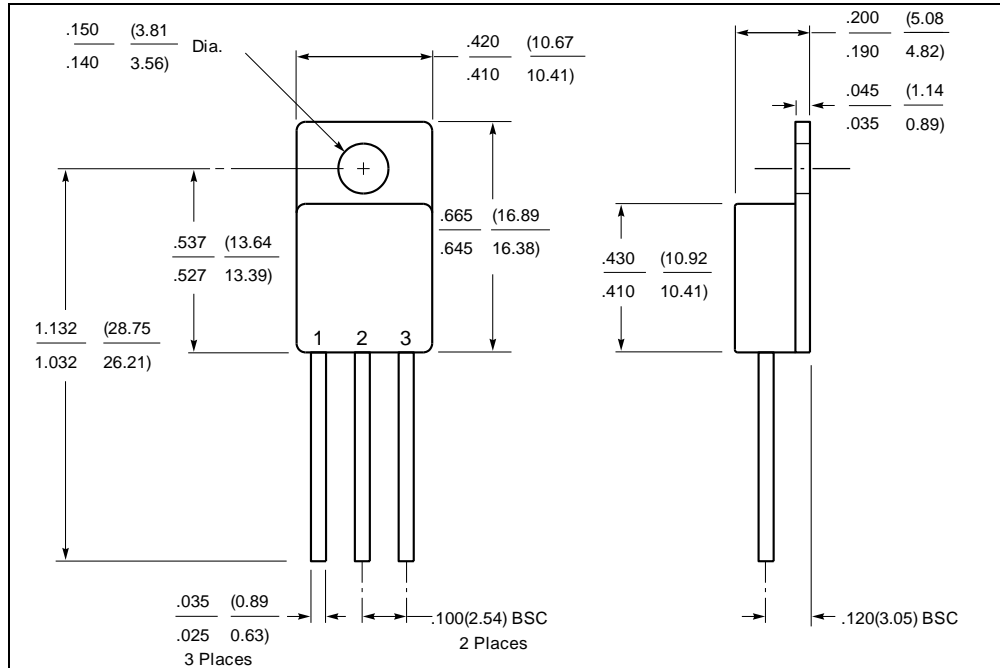
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CHARACTERISTIC	MIN	TYP	MAX	UNITS
Turn - on delay time (VDD = 800V, VGS = -5/20V, ID = 10A, RL = 80Ω, RG = 2.5Ω)		10		ns
Rise time (VDD = 800V, VGS = -5/20V, ID = 10A, RL = 80Ω, RG = 2.5Ω)		13		ns
Turn - off delay time (VDD = 800V, VGS = -5/20V, ID = 10A, RL = 80Ω, RG = 2.5Ω)		18		ns
Fall time (VDD = 800V, VGS = -5/20V, ID = 10A, RL = 80Ω, RG = 2.5Ω)		12		ns
Total gate charge (VDD = 400V, VGS = 18V, ID = 10A)		106		nC
Gate - Source charge (VDD = 800V, VGS = -5/20V, ID = 10A)		7		nC
Gate - Drain charge (VDD = 400V, VGS = 18V, ID = 10A)		14		nC
Total Gate Charge (VDD = 400V, VGS = 18V, ID = 10A)		34		V
INVERSE DIODE CONTINUOUS, FORWARD CURRENT			20	A
INVERSE DIODE DIRECT CURRENT, PULSED			45	A
FORWARD VOLTAGE (IF = 10A)		1.8		V
REVERSE RECOVERY TIME		37		ns
CAPACITANCE STORED ENERGY		60		nC
PEAK REVERSE RECOVERY CURRENT		40		μJ

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MECHANICAL DIMENSIONS

TO-257



PINOUT TABLE

TYPE	PIN 1	PIN 2	PIN 3
N-CHANNEL MOSFET	DRAIN	SOURCE	GATE

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