

TECHNICAL DATA
DATA SHEET 5293, REV. -

HERMETIC SILICON CARBIDE MOSFET

DESCRIPTION: A 1200 VOLT, 31 AMP POWER SILICON CARBIDE N-CHANNEL MOSFET IN AN ISOLATED HERMETIC TO-254 PACKAGE, AVAILABLE SCREENED TO ANY REQUIRED LEVEL

FEATURES:

- 80mΩ typical on-resistance
- Fast switching and reverse recovery
- Ceramic seals

MAXIMUM RATINGS

ALL RATINGS ARE @ $T_C = 25\text{ }^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX	UNITS
DRAIN-SOURCE VOLTAGE	V_{DSS}	1200	V
CONTINUOUS DRAIN CURRENT	I_D	31	A
CONTINUOUS DRAIN CURRENT, $T_C = 100\text{ }^\circ\text{C}$	I_D	20	A
PULSED DRAIN CURRENT ($t \leq 10\mu\text{s}$, $dc \leq 1\%$)	$I_{D,pulse}$	80	A
GATE - SOURCE VOLTAGE	V_{GSS}	-6 to 22	V
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$,	P_d	150	W
MAXIMUM THERMAL RESISTANCE	$R_{\theta JC}$.83	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE	T_{op}, T_{stg}	-55 to 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	MIN	TYP	MAX	UNITS
DRAIN - SOURCE BREAKDOWN VOLTAGE ($V_{GS} = 0V$, $I_D = 1mA$)	1200			V
ZERO GATE VOLTAGE DRAIN CURRENT ($V_{DS} = 1200V$, $V_{GS} = 0V$)			10	μA
GATE - SOURCE LEAKAGE CURRENT ($V_{GS} = +22V$, $V_{DS} = 0V$)			100	nA
GATE - SOURCE LEAKAGE CURRENT ($V_{GS} = -6V$, $V_{DS} = 0V$)			-100	nA
GATE THRESHOLD VOLTAGE ($V_{DS} = V_{GS}$, $I_D = 4.4mA$)	1.6		4.0	V
STATIC DRAIN - SOURCE ON - STATE RESISTANCE ($V_{GS} = 18V$, $I_D = 10A$)			125	mΩ
TRANSCONDUCTANCE ($V_{DS} = 10V$, $I_D = 10A$)		3.7		S
INPUT CAPACITANCE ($V_{GS} = 0V$, $V_{DS} = 800V$, $f = 1MHz$)		2080		pF
OUTPUT CAPACITANCE ($V_{GS} = 0V$, $V_{DS} = 800V$, $f = 1MHz$)		77		pF
REVERSE TRANSFER CAPACITANCE ($V_{GS} = 0V$, $V_{DS} = 800V$, $f = 1MHz$)		16		pF

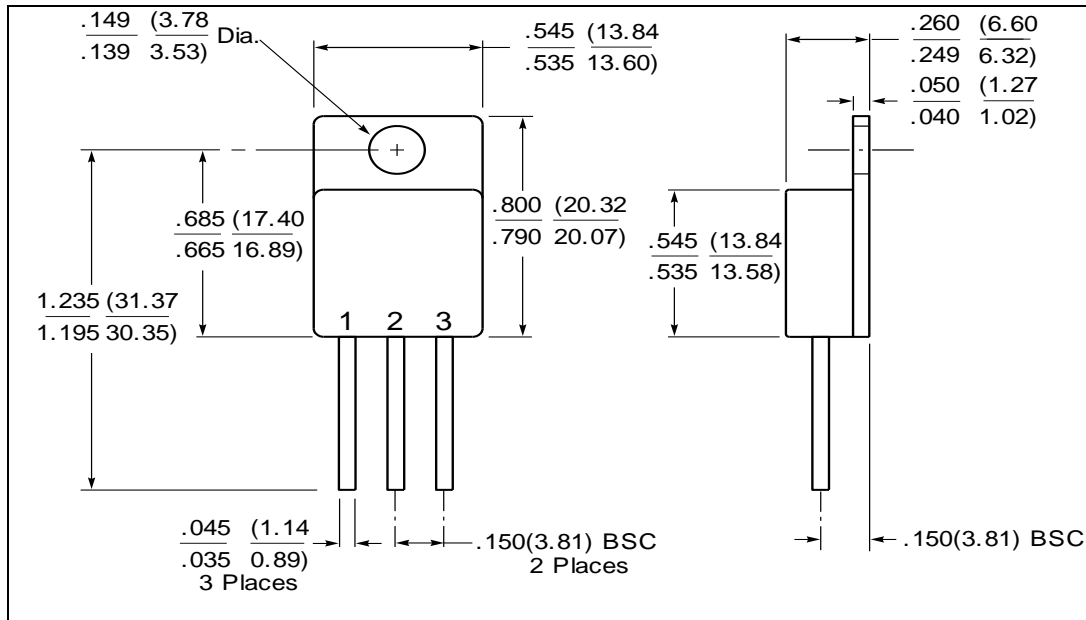
TECHNICAL DATA
DATA SHEET 5293, REV. -**ELECTRICAL CHARACTERISTICS (CONTINUED)**

CHARACTERISTIC	MIN	TYP	MAX	UNITS
Turn - on delay time (VDD = 400V, VGS = 18V, ID = 10A, RL = 40Ω, RG = 0Ω)		35		ns
Rise time (VDD = 400V, VGS = 18V, ID = 10A, RL = 40Ω, RG = 0Ω)		36		ns
Turn - off delay time (VDD = 400V, VGS = 18V, ID = 10A, RL = 40Ω, RG = 0Ω)		76		ns
Fall time (VDD = 400V, VGS = 18V, ID = 10A, RL = 40Ω, RG = 0Ω)		22		ns
Total gate charge (VDD = 400V, VGS = 18V, ID = 10A)		106		nC
Gate - Source charge (VDD = 400V, VGS = 18V, ID = 10A)		27		nC
Gate - Drain charge (VDD = 400V, VGS = 18V, ID = 10A)		31		nC
Gate plateau voltage (VDD = 400V, VGS = 18V, ID = 10A)		9.7		V
INVERSE DIODE CONTINUOUS, FORWARD CURRENT			22	A
INVERSE DIODE DIRECT CURRENT, PULSED			80	A
FORWARD VOLTAGE		4.6		V
REVERSE RECOVERY TIME		31		ns
REVERSE RECOVERY CHARGE		44		nC
PEAK REVERSE RECOVERY CURRENT		2.3		A

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MECHANICAL DIMENSIONS

TO-254



PINOUT TABLE

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

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