

1200V, 20A Silicon Carbide Power MOSFET

- Through-hole hermetic package
- Low R_{dson} over full temperature range
- Low switching losses
- Very low capacitance
- JANTX / JANS screening options available

Maximum Ratings

PARAMETER	SYMBOL	VALUE	UNIT
Continuous Drain Current $V_{GS} = 20V, T_C = 25^{\circ}C$ $T_C = 100^{\circ}C$	I_D	20 11	A
Pulsed Drain Current $T_C = 25^{\circ}C$	I_{Dpulse}	60	A
Gate Source Voltage	V_{GS}	-10, +25	V
Power Dissipation $T_C = 25^{\circ}C$	P_{tot}	120	W
Operating Junction Temperature *	T_J	-55 to 150	$^{\circ}C$

Note: * This is a new product – the max junction temperature is expected to go up to $175^{\circ}C$ in future.

MOSFET Characteristics ($T_J = 25^{\circ}C$ unless indicated)

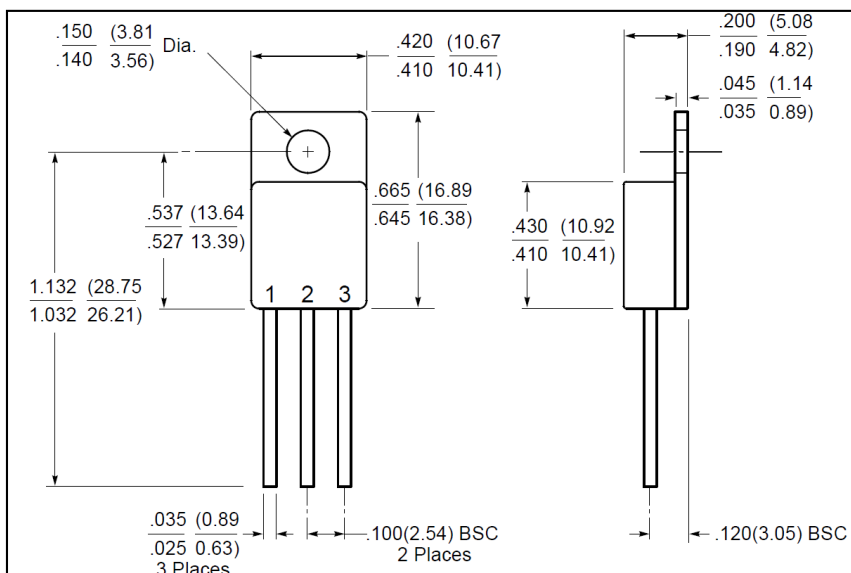
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage $I_D = 100\mu A$	$V_{(BR)DSS}$	1200	-	-	V
Gate Threshold Voltage $V_{GS} = V_{DS}, I_D = 1mA$	$V_{GS(TH)}$	1.7	2.2	-	V
Zero Gate Voltage Drain Current $V_{GS} = 0V, V_{DS} = 1200V, T_J = 25^{\circ}C$ $V_{GS} = 0V, V_{DS} = 1200V, T_J = 150^{\circ}C$	I_{DSS}	- -	1 10	100 250	μA
Gate-Source Leakage Current $V_{GS} = 20V, V_{DS} = 0V$	I_{GSS}	-	-	250	nA
On-State Resistance $V_{GS} = 20V, I_D = 20A, T_J = 25^{\circ}C$ $V_{GS} = 20V, I_D = 20A, T_J = 150^{\circ}C$	$R_{DS(ON)}$	- -	100 160	110 220	m Ω
Transconductance $V_{DS} = 20V, I_{DS} = 20A, T_J = 25^{\circ}C$ $V_{DS} = 20V, I_{DS} = 20A, T_J = 125^{\circ}C$	g_{fs}	- -	9.8 8.5	- -	S
Input Capacitance $V_{DD} = 800V, V_{GS} = 0V, f = 1MHz$	C_{iss}	-	950	-	pF
Output Capacitance $V_{DD} = 800V, V_{GS} = 0V, f = 1MHz$	C_{oss}	-	80	-	pF
Reverse Transfer Capacitance $V_{DD} = 800V, V_{GS} = 0V, f = 1MHz$	C_{rss}	-	6.5	-	pF
Internal Gate Resistance	R_G	-	4.6	-	Ω
Thermal Resistance, Junction to Case	R_{THJC}	-	-	1.25	K/W

Intrinsic Diode Characteristics ($T_j = 25^{\circ}\text{C}$ unless indicated)

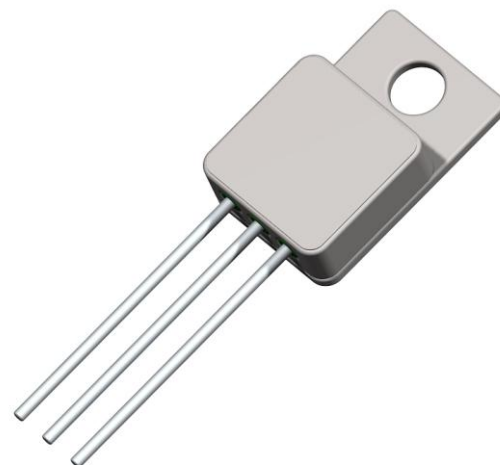
PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Forward Voltage	$V_{GS}=-5\text{V}, I_F=10\text{A}$	V_{SD}	-	3.3	-	V
Reverse Recovery Time	$V_{GS}=-5\text{V}, I_F=20\text{A}, V_R=800\text{V}$ $di/dt=100\text{A/us}$	t_{RR}	-	40	-	ns
Reverse Recovery Charge	$V_{GS}=-5\text{V}, I_F=20\text{A}, V_R=800\text{V}$ $di/dt=100\text{A/us}$	Q_{RR}	-	165	-	nC
Peak Reverse Recovery Current	$V_{GS}=-5\text{V}, I_F=20\text{A}, V_R=800\text{V}$ $di/dt=100\text{A/us}$	I_{RRM}	-	6.4	-	A

Mechanical Dimensions (inches/mm):

TO-257



1. Drain
2. Source
3. Gate



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