

TECHNICAL DATA  
DATA SHEET 581, REV. -

## HERMETIC POWER MOSFET N-CHANNEL

**FEATURES:**

- 60 Volt, 0.035 Ohm, 20A MOSFET
- Isolated Hermetic Metal Package
- Fast Switching
- Low  $R_{DS(on)}$
- Equivalent to IRFY044 Series

**MAXIMUM RATINGS**

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

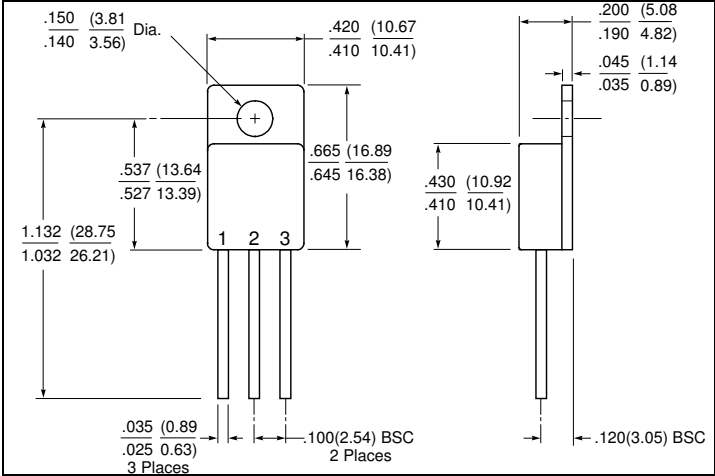
RATING	SYMBOL	MIN.	TYP.	MAX.	UNITS
GATE TO SOURCE VOLTAGE	$V_{GS}$	-	-	$\pm 20$	Volts
ON-STATE DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	$I_D$	-	-	20	Amps
PULSED DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	$I_{DM}$	-	-	128	Amps
OPERATING AND STORAGE TEMPERATURE	$T_{OP}/T_{STG}$	-55	-	+150	$^\circ\text{C}$
THERMAL RESISTANCE, JUNCTION TO CASE	$R_{thJC}$	-	-	2.1	$^\circ\text{C}/\text{W}$
TOTAL DEVICE DISSIPATION @ $T_C = 25^\circ\text{C}$	$P_D$	-	-	60	Watts

**ELECTRICAL CHARACTERISTICS**

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNITS
DRAIN TO SOURCE BREAKDOWN VOLTAGE $V_{GS} = 0\text{V}, I_D = 1.0\text{mA}$	$BV_{DSS}$	60	-	-	Volts
TOTAL GATE CHARGE $V_{GS} = 10\text{V}, I_D = 20\text{A}, V_{DS} = 0.5 \times V_{DS} \text{ Max.}$	$Q_g$	39	-	88	nC
GATE TO SOURCE ON-STATE VOLTAGE $V_{GS} = 10\text{V}, I_D = 20\text{A}, V_{DS} = 0.5 \times V_{DS} \text{ Max.}$	$Q_{gs}$	6.7	-	15	nC
GATE DRAIN CHARGE $V_{GS} = 10\text{V}, I_D = 20\text{A}, V_{DS} = 0.5 \times V_{DS} \text{ Max.}$	$Q_{gd}$	18	-	52	nC
STATIC DRAIN TO SOURCE ON STATE RESISTANCE $V_{GS} = 10\text{V}, I_D = 20\text{A}$	$R_{DS(ON)}$	-	-	0.035	$\Omega$
GATE THRESHOLD VOLTAGE $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	$V_{GS(th)}$	2.0	-	4.0	Volts
FORWARD TRANSCONDUCTANCE $V_{DS} \geq 15\text{V}, I_D = 20\text{A}$	$g_{fs}$	17	-	-	S(1/ $\Omega$ )
ZERO GATE VOLTAGE DRAIN CURRENT $V_{DS} = 0.8 \times \text{Max. Rating}, V_{GS} = 0\text{V}$ $V_{DS} = 0.8 \times \text{Max. Rating}, V_{GS} = 0\text{V}, T_J = 125^\circ\text{C}$	$I_{DSS}$	-	-	25 250	$\mu\text{A}$
GATE TO SOURCE LEAKAGE FORWARD $V_{GS} = 20\text{V}$ GATE TO SOURCE LEAKAGE REVERSE $V_{GS} = -20\text{V}$	$I_{GSS}$	-	-	100 -100	nA
TURN ON DELAY TIME RISE TIME TURN OFF DELAY TIME FALL TIME $V_{DD} = 30\text{V}, I_D = 20\text{A}, R_G = 9.1\Omega, V_{GS} = 10\text{V}$	$t_{d(ON)}$ $t_r$ $t_{d(OFF)}$ $t_f$	-	-	23 130 81 79	nsec
DIODE FORWARD VOLTAGE $T_C = 25^\circ\text{C}, I_S = 20\text{A}, V_{GS} = 0\text{V}$	$V_{SD}$	-	-	2.5	Volts
REVERSE RECOVERY TIME $T_J = 25^\circ\text{C}, I_S = 20\text{A}, di/ds \leq 100\text{A}/\mu\text{sec}, V_{DD} \leq 50\text{V}$	$t_{rr}$	-	-	220	nsec
INPUT CAPACITANCE $V_{GS} = 0\text{V}$ OUTPUT CAPACITANCE $V_{DS} = 25\text{V}$ REVERSE TRANSFER CAPACITANCE $f = 1.0\text{MHz}$	$C_{iss}$ $C_{oss}$ $C_{rss}$	-	2400 1100 230	-	pF

**SENSITRON**  
**DATA SHEET 581**  
**REVISION -**

**MECHANICAL DIMENSIONS: in Inches / mm**



**TO-257**

**PINOUT TABLE**

DEVICE TYPE	PIN 1	PIN 2	PIN 3
MOSFET TO-257 PACKAGE	DRAIN	SOURCE	GATE

**TECHNICAL DATA**

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