

TECHNICAL DATA  
DATA SHEET 582, REV. -

## HERMETIC POWER MOSFET P-CHANNEL

### FEATURES:

- -100 Volt, 0.21 Ohm, -13A MOSFET
- Isolated Hermetic Metal Package
- Fast Switching
- Equivalent to IRFY9140 Series

### MAXIMUM RATINGS

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

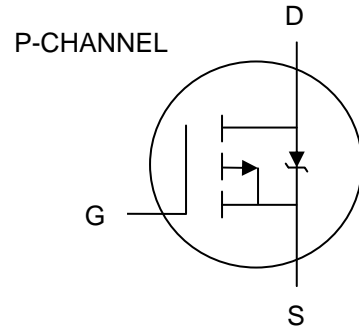
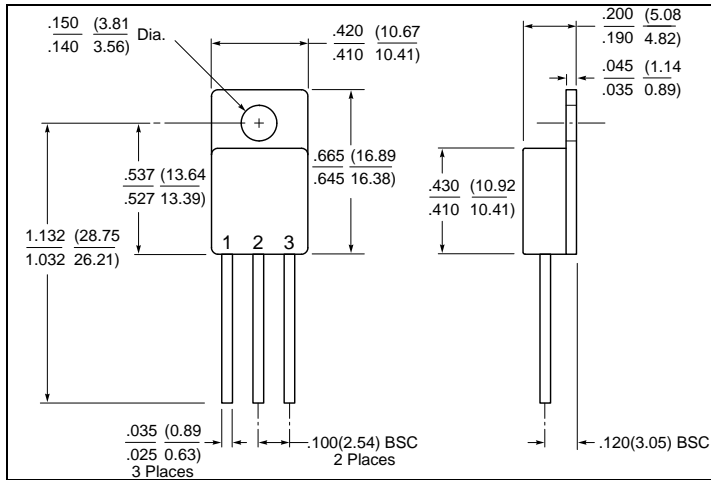
RATING	SYMBOL	MIN.	TYP.	MAX.	UNITS
GATE TO SOURCE VOLTAGE	$V_{GS}$	-	-	$\pm 20$	Volts
ON-STATE DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	$I_{D(on)}$	-	-	-13	Amps
PULSED DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	$I_{DM}$	-	-	-52	Amps
OPERATING AND STORAGE TEMPERATURE	$T_{OP}/T_{STG}$	-55	-	+150	$^\circ\text{C}$
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 $V_{GS} = 0\text{V}, I_D = 1.0\text{ mA}$	$BV_{DSS}$	-100	-	-	Volts
TOTAL GATE CHARGE $V_{GS} = -10\text{V}, I_D = -13\text{A}, V_{DS} = 0.5 \times V_{DS} \text{ Max.}$	$Q_g$	31	-	60	nC
GATE TO SOURCE ON-STATE VOLTAGE $V_{GS} = -10\text{V}, I_D = -13\text{A}, V_{DS} = 0.5 \times V_{DS} \text{ Max.}$	$Q_{gs}$	3.7	-	13	nC
GATE DRAIN CHARGE $V_{GS} = -10\text{V}, I_D = -13\text{A}, V_{DS} = 0.5 \times V_{DS} \text{ Max.}$	$Q_{gd}$	7.0	-	35.2	nC
STATIC DRAIN TO SOURCE ON STATE RESISTANCE $V_{GS} = 10\text{V}, I_D = -8.4\text{A}$ $V_{GS} = 10\text{V}, I_D = -13\text{A}$	$R_{DS(ON)}$	-	-	0.21 0.24	$\Omega$
GATE THRESHOLD VOLTAGE $V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	$V_{GS(th)}$	-2.0	-	-4.0	Volts
FORWARD TRANSCONDUCTANCE $V_{DS} \geq 15V_{DS(on)}, I_D = -8.2\text{A}$	$g_{fs}$	6.2	-	-	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	mA
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 $V_{DD} = -50\text{V}, I_D = -13\text{A}, R_G = 9.1\Omega, V_{GS} = -10\text{V}$	$t_{d(ON)}$ $t_r$ $t_{d(OFF)}$ $t_f$	-	-	35 85 85 65	nsec
DIODE FORWARD VOLTAGE $T_C = 25^\circ\text{C}, I_S = -13\text{A}, V_{GS} = 0\text{V}$	$V_{SD}$	-	-	-4.2	Volts
REVERSE RECOVERY TIME $T_J = 25^\circ\text{C}, I_S = -13\text{A}, di/dt \leq -100\text{A}/\mu\text{sec}, V_{DD} \leq -50\text{V}$	$t_{rr}$	-	-	280	nsec
INPUT CAPACITANCE OUTPUT CAPACITANCE REVERSE TRANSFER CAPACITANCE $V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1.0\text{MHz}$	$C_{iss}$ $C_{oss}$ $C_{rss}$	-	1400 600 200	-	pF

**SENSITRON**  
**DATA SHEET 582**  
**REVISION -**

**MECHANICAL DIMENSIONS: in Inches / mm**



**TO-257**

**PINOUT TABLE**

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

**DISCLAIMER:**

- 1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the Sensitron Semiconductor sales department for the latest version of the datasheet(s).
- 2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
- 3- In no event shall Sensitron Semiconductor be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). Sensitron Semiconductor assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
- 4- In no event shall Sensitron Semiconductor be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
- 5- No license is granted by the datasheet(s) under any patents or other rights of any third party or Sensitron Semiconductor.
- 6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of Sensitron Semiconductor.
- 7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations.