

TECHNICAL DATA  
DATA SHEET 1064, REV. -

## HERMETIC POWER MOSFET N-CHANNEL

DESCRIPTION: A 500 VOLT, 0.415 OHM, 12A MOSFET IN A HERMETIC TO-254 PACKAGE.

### MAXIMUM RATINGS

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

RATING	SYMBOL	MIN.	TYP.	MAX.	UNITS
GATE TO SOURCE VOLTAGE	$V_{GS}$	-	-	$\pm 20$	Volts
CONTINUOUS DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	$I_D$	-	-	12	Amps
PULSED DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	$I_{DM}$	-	-	48	Amps(pk)
OPERATING AND STORAGE TEMPERATURE	$T_{OP}/T_{STG}$	-55	-	+150	$^\circ\text{C}$
THERMAL RESISTANCE JUNCTION TO CASE	$R_{\theta JC}$	-	-	0.83	$^\circ\text{C}/\text{W}$
TOTAL DEVICE DISSIPATION @ $T_C = 25^\circ\text{C}$	$P_D$	-	-	150	Watts

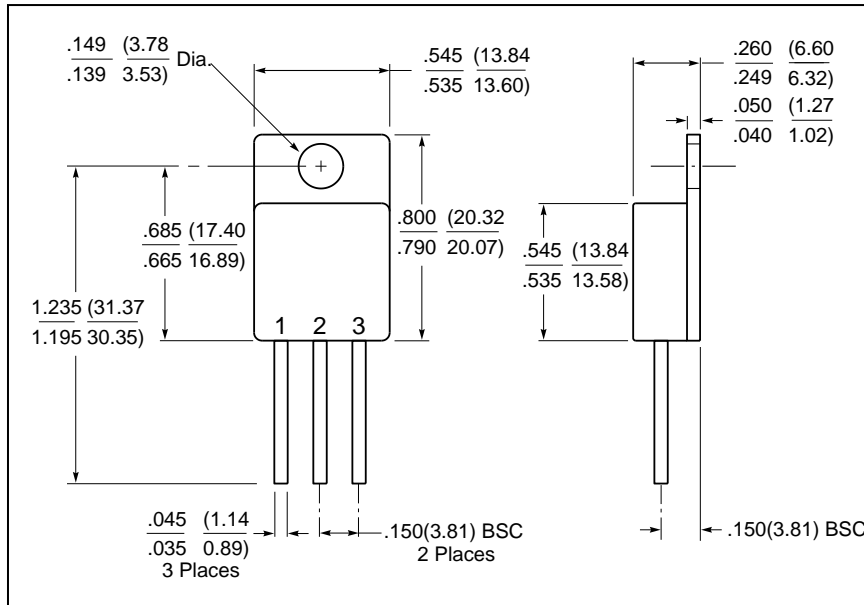
### ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNITS
DRAIN TO SOURCE BREAKDOWN VOLTAGE $V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	$BV_{DSS}$	500	-	-	Volts
GATE THRESHOLD VOLTAGE $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	$V_{GS(TH)}$	2.0	-	4.0	Volts
DRAIN TO SOURCE ON STATE RESISTANCE $V_{GS} = 10\text{Vdc}, I_D = 8.0\text{A}$ PULSE TEST, $t \leq 300 \mu\text{s}$ , DUTY CYCLE $d \leq 2\%$	$R_{DS(ON)}$	-	-	0.415	$\Omega$
ZERO GATE VOLTAGE DRAIN CURRENT $V_{DS} = \text{Max. Rating}, V_{GS} = 0\text{Vdc}$ $V_{DS} = 0.8 \times \text{Max. Rating}$ $V_{GS} = 0\text{Vdc}, T_J = 125^\circ\text{C}$	$I_{DSS}$	-	-	25	$\mu\text{A}$
GATE TO BODY LEAKAGE CURRENT $V_{GS} = \pm 20\text{Vdc}$	$I_{GSS}$	-	-	$\pm 100$	nA
TOTAL GATE CHARGE $V_{GS} = 10\text{Vdc}$	$Q_g$	55	-	120	nC
GATE TO SOURCE CHARGE $V_{DS} = 0.5\text{V Max. Rating}$	$Q_{gs}$	5.0	-	19	nC
GATE TO DRAIN CHARGE $I_D = 12\text{A}$	$Q_{gd}$	27	-	70	nC
TURN ON DELAY TIME $V_{DD} = 250\text{V}$	$t_{d(ON)}$	-	-	35	nsec
RISE TIME $I_D = 12\text{A}$	$t_r$	-	-	190	nsec
TURN OFF DELAY TIME $R_G = 2.35\Omega$	$t_{d(OFF)}$	-	-	170	nsec
FALL TIME	$t_f$	-	-	130	nsec
FORWARD VOLTAGE $I_S = 12\text{A}, V_{GS} = 0\text{V}$ PULSE TEST, $t \leq 300 \mu\text{s}$ , DUTY CYCLE $d \leq 2\%$	$V_{SD}$	-	-	1.7	Volts
REVERSE RECOVERY TIME $I_F = 12\text{A}$	$t_{rr}$	-	-	1600	nsec
REVERSE RECOVERY CHARGE $di/dt = 100\text{A}/\mu\text{sec}$ $V_{DD} \leq 50\text{V}$	$Q_{rr}$	-	-	14	$\mu\text{C}$
INPUT CAPACITANCE $V_{DS} = 25\text{Vdc}$	$C_{iss}$	-	2700	-	pF
OUTPUT CAPACITANCE $V_{GS} = 0\text{Vdc}$	$C_{oss}$	-	600	-	pF
REVERSE TRANSFER CAPACITANCE $f = 1\text{MHz}$	$C_{rss}$	-	240	-	pF
DRAIN TO CASE CAPACITANCE	$C_{DC}$	-	12	-	pF

SENSITRON

TECHNICAL DATA  
DATA SHEET 1064, REV. -

MECHANICAL DIMENSIONS: in Inches / mm



**TO-254**

**PINOUT TABLE**

DEVICE TYPE	PIN 1	PIN 2	PIN 3
MOSFET, TO-254 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.