

TECHNICAL DATA
DATA SHEET 359, REV. A
Formerly Part Number -- SHD22512

HERMETIC POWER MOSFET N-CHANNEL

DESCRIPTION: A 500 VOLT, 0.415 OHM, 12A MOSFET IN A HERMETIC TO-254 PACKAGE.
Electrically Equivalent to IRFC450

MAXIMUM RATINGS

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

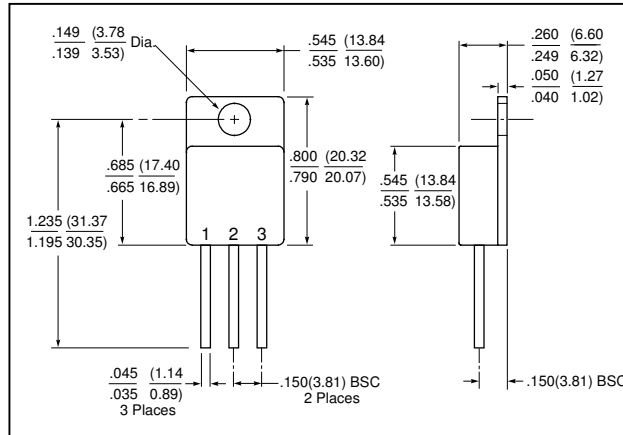
RATING	SYMBOL	MIN.	TYP.	MAX.	UNITS
GATE TO SOURCE VOLTAGE	V_{GS}	-	-	± 20	Volts
CONTINUOUS DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	I_D	-	-	12	Amps
PULSED DRAIN CURRENT @ $T_C = 25^\circ\text{C}$	I_{DM}	-	-	48	Amps(pk)
OPERATING AND STORAGE TEMPERATURE	T_{OP}/T_{STG}	-55	-	+150	$^\circ\text{C}$
TERMAL RESISTANCE JUNCTION TO CASE	$R_{\theta JC}$	-	-	0.83	$^\circ\text{C/W}$
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	Ω
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	μA
GATE TO BODY LEAKAGE CURRENT $V_{GS} = \pm 20\text{Vdc}$	I_{GSS}	-	-	± 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 $V_{DD} = 250\text{V}, I_D = 12\text{A}$	$t_{d(ON)}$	-	-	35	nsec
RISE TIME	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	μC
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

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MECHANICAL DIMENSIONS: in Inches / mm



TO-254

PINOUT TABLE

DEVICE TYPE	PIN 1	PIN 2	PIN 3
MOSFET, TO-254 PACKAGE	DRAIN	SOURCE	GATE

TECHNICAL DATA

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