IXYS

TECHNICAL DATA SHEET DATA SHEET NO. 1004A August 1988

High Voltage Power MOSFET Die

IRFC450

N-Channel Enhancement Mode High Ruggedness Series

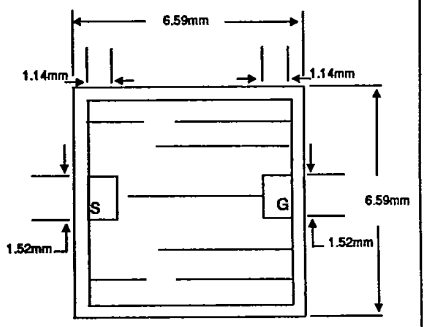
$V_{(BR)DSS}$ 500V
$R_{DS(on)}$ 0.4Ω

The following device types use the IRFC450:

2N6769	IXTH15N50A/IXTM15N50A
2N6770	IXTH15N45A/IXTM15N45A
IRF450/IRFP450	IXTH12N50A/IXTM12N50A
IRF451/IRFP451	IXTH12N50 /IXTM12N50
IRF452/IRFP452	IXTH12N45A/IXTM12N45A
IRF453/IRFP453	ITXH12N45 /IXTM12N45

Die Topography

Notes:
1. Top Metal 3 µm Aluminum
2. Back Metal Ni/V, with Au
3. Die thickness 420 ± 10 µm



FEATURES:

- Fast switching times
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Excellent high voltage stability
- Low input capacitance
- Improved high temperature reliability

APPLICATIONS:

- Switching power supplies
- Motor controls
- Audio Amplifiers
- Inverters
- Choppers

ELECTRICAL CHARACTERISTICS: (TA=25 °C unless otherwise specified)

CHARACTERISTIC	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 250 µA	$V_{(BR)DSS}$	500	—	—	V
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 µA	$V_{GS(th)}$	2.0	—	4.0	V
Gate-Source Leakage Current	V_{GS} = ±20 V_{DC}	I_{GSS}	—	—	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = $V_{(BR)DSS}$ x 0.8, V_{GS} = 0 V, T_C = 25°C	I_{DSS}	—	—	250	µA
	T_C = 125°C	I_{DSS}	—	—	1000	µA
Static Drain-Source On-Resistance	V_{GS} = 10 V, I_D = 6.0 A	$R_{DS(ON)}$	—	—	0.4	Ω
Ciss Input Capacitance	V_{GS} = 0V, V_{DS} = 25 V, f = 1.0 MHz	Ciss	—	—	3000	pF
Coss Output Capacitance	Pulse Test: Pulse width ≤300ms, duty cycle ≤2%	Coss	—	—	450	pF
Crss Reverse Transfer Capacitance		Crss	—	—	150	pF

NOTES:

1. I_D based on R_{thJC} = 0.83 °C/W
2. ASSEMBLY RECOMMENDATIONS:
   a) 10 mil Gate and 15 mil Source wires
   b) Drain mounted with 92.5/5/2.5% Lead/Indium/Silver solder, or 95/5% Lead/tin solder
3. Devices shipped in ESD protected waffle packs with a maximum of 25 die per waffle pack.
4. Die should be handled and assembled in clean room environment.
5. Die should be stored in inert atmosphere (1 atmosphere N_2)

IXYS Corporation
2355 Zanker Rd., San Jose, CA 95131-1109
TEL: (408) 435-1900 • TLX: 384928 IXYS SNJ US • FAX: (408) 435-0670