



TECHNICAL DATA SHEET

DATA SHEET NO. 1004A

August 1988

High Voltage Power MOSFET Die

N-Channel Enhancement Mode High Ruggedness Series

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	IXTH12N45 /IXTM12N45

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

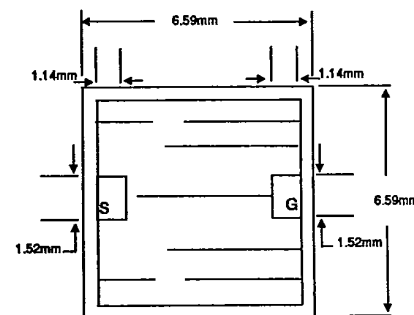
IRFC450

$V_{(BR)DSS}$ 500V
 $R_{DS(on)}$ 0.4 Ω

Die Topography

Notes:

1. Top Metal 3 μ m Aluminum
2. Back Metal Ni/V, with Au
3. Die thickness 420 $\pm$ 10 μ m



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

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

NOTES:

1. I_D based on $R_{thJC} = 0.83\text{ }^\circ\text{C/W}$
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 reserves the right to change limits, test conditions, and dimensions without notice.

IXYS Corporation

2355 Zanker Rd., San Jose, CA 95131-1109

TEL: (408) 435-1900

• TLX: 384928 IXYS SNJ US •

FAX: (408) 435-0670