

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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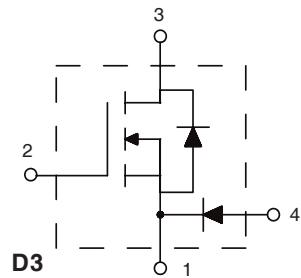
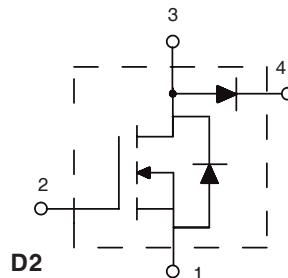
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HiPerFET™

Power MOSFETs

	V_{DSS}	$I_{D(\text{cont})}$	$R_{DS(\text{on})}$	t_{tr}
IXFE44N50QD2	500 V	39 A	0.12 Ω	35 ns
IXFE48N50QD2	500 V	41 A	0.11 Ω	35 ns

Buck & Boost Configurations for PFC & Motor Control Circuits



	Symbol	Test Conditions	Maximum Ratings		ISOPLUS 227™(IXFE)
HiPerFET MOSFET	V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500	V	
	V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	500	V	
	V_{GS}	Continuous	± 20	V	
	V_{GSM}	Transient	± 30	V	
	I_{D25}	$T_c = 25^\circ\text{C}$	44N50Q 48N50Q	39 41	A
	I_{DM}	$T_c = 25^\circ\text{C}$, pulse width limited by max. T_{JM}	44N50Q 48N50Q	176 192	A
	I_{AR}	$T_c = 25^\circ\text{C}$		48	A
	E_{AR}	$T_c = 25^\circ\text{C}$		60	mJ
	E_{AS}	$T_c = 25^\circ\text{C}$		2.5	J
	dv/dt	$I_s \leq I_{DM}$, $-\text{di}/\text{dt} \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$		15	V/ns
DIODE	P_D	$T_c = 25^\circ\text{C}$		400	W
	V_{RRM}			600	V
	I_{FAVM}	$T_c = 70^\circ\text{C}$; rectangular, $d = 0.5$		60	A
	I_{FRM}	$t_p < 10 \mu\text{s}$; pulse width limited by T_J		800	A
CASE	P_D	$T_c = 25^\circ\text{C}$		180	W
	T_J		-40 ... +150		$^\circ\text{C}$
	T_{JM}		150		$^\circ\text{C}$
	T_{stg}		-40 ... +150		$^\circ\text{C}$
	V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$ $t = 1 \text{ s}$	2500 3000	V~
	M_d	Mounting torque Terminal connection torque (M4)		1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.	
	Weight			19	g

Features

- Popular Buck & Boost circuit topologies
- Conforms to SOT-227B outline
- Isolation voltage 3000 V~
- Low $R_{DS(\text{on})}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Low drain-to-case capacitance (<60 pF)
 - reduced RFI
- Ultra-fast FRED diode with soft reverse recovery

Applications

- Power factor controls and buck regulators
- DC servo and robotic drives
- DC choppers
- Switch reluctance motor controls

Advantages

- Easy to mount with 2 screws
- Space savings
- Tightly coupled FRED

Symbol	Test Conditions	Characteristic Values			
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 1 \text{ mA}$	500			V
$V_{GS(\text{th})}$	$V_{DS} = V_{GS}$, $I_D = 4 \text{ mA}$	2		4	V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{\text{DC}}$, $V_{DS} = 0$			± 100	nA
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		100 2	μA mA
$R_{DS(\text{on})}$	$V_{GS} = 10 \text{ V}$, $I_D = I_T$ 44N50Q 48N50Q Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $\delta \leq 2 \%$	44N50Q 48N50Q		0.12 0.11	Ω

Symbol	Test Conditions	Characteristic Values			
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.	max.
g_{fs}	$V_{DS} = 10 \text{ V}$, $I_D = I_T$, pulse test	30	36		S
C_{iss} C_{oss} C_{rss}	$\}$ $V_{GS} = 0 \text{ V}$, $V_{DS} = 25 \text{ V}$, $f = 1 \text{ MHz}$	8000 930 220			pF
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$\}$ $V_{GS} = 10 \text{ V}$, $V_{DS} = 0.5 \text{ V}_{DSS}$, $I_D = I_T$ $R_G = 1\Omega$ (External)	33 22 75 10			ns
$Q_{g(on)}$ Q_{gs} Q_{gd}	$\}$ $V_{GS} = 10 \text{ V}$, $V_{DS} = 0.5 \text{ V}_{DSS}$, $I_D = I_T$	190 40 86			nC
R_{thJC}			0.31		K/W
R_{thCK}			0.07		K/W

Ultra-fast Diode

Symbol	Test Conditions	Characteristic Values			
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.	max.
I_R	$T_J = 25^\circ\text{C}$; $V_R = V_{RRM}$ $T_J = 150^\circ\text{C}$; $V_R = 0.8V_{RRM}$			200 2.5	μA mA
V_F	$I_F = 60\text{A}$, $V_{GS} = 0 \text{ V}$ Note1		2.05		V
		$T_J = 150^\circ\text{C}$		1.4	V
t_{rr}	$I_f = 1\text{A}$, $di/dt = -200 \text{ A}/\mu\text{s}$, $V_R = 30 \text{ V}$, $T_J = 25^\circ\text{C}$	35	50		ns
I_{RM}	$I_f = 60\text{A}$, $di/dt = -100 \text{ A}/\mu\text{s}$, $V_R = 100 \text{ V}$, $T_J = 100^\circ\text{C}$			8.3	A
R_{thJC}				0.7	K/W
R_{thJK}			0.05		K/W

Note: 1. Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $\delta \leq 2 \%$

2. IXFE44N50 $I_T = 22\text{A}$
- IXFE48N50 $I_T = 24\text{A}$

IXYS reserves the right to change limits, test conditions, and dimensions.