

HiPerFET™ Power MOSFET

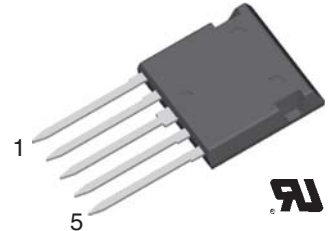
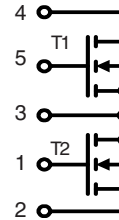
Common Source Topology
in ISOPLUS i4-PAC™

$$I_{D25} = 75 \text{ A}$$

$$V_{DSS} = 100 \text{ V}$$

$$R_{DSon typ.} = 18 \text{ m}\Omega$$

Preliminary data



MOSFET T1/T2				
Symbol	Conditions	Maximum Ratings		
V_{DSS}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	100	V	
V_{GS}		± 20	V	
I_{D25}	$T_C = 25^{\circ}\text{C}$	75	A	
I_{D90}	$T_C = 90^{\circ}\text{C}$	50	A	
I_{F25}	(body diode) $T_C = 25^{\circ}\text{C}$	100	A	
I_{F90}	(body diode) $T_C = 90^{\circ}\text{C}$	60	A	
dv/dt	$V_{DS} < V_{DSS}; I_F \leq 300\text{A}; di_F/dt \leq 100\text{A}/\mu\text{s}; R_G = 2 \Omega$ $T_{VJ} = 150^{\circ}\text{C}$	5	V/ns	
E_{AR}	$T_C = 25^{\circ}\text{C}$	30	mJ	
Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
R_{DSon}	$V_{GS} = 10 \text{ V}; I_D = I_{D90}$		18	25 m Ω
V_{GSth}	$V_{DS} = 20 \text{ V}; I_D = 4 \text{ mA}$	2		4 V
I_{DSS}	$V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.25	0.3 mA mA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			200 nA
Q_g Q_{gs} Q_{gd}	$V_{GS} = 10 \text{ V}; V_{DS} = 0.5 \cdot V_{DSS}; I_D = I_{D90}$		180	nC
			35	nC
			85	nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10 \text{ V}; V_{DS} = 0.5 \cdot V_{DSS}$ $I_D = I_{D90}; R_G = 2 \Omega$		20	ns
			60	ns
			80	ns
			60	ns
V_F	(body diode) $I_F = 75 \text{ A}; V_{GS} = 0 \text{ V}$		1.2	1.5 V
t_{rr}	(body diode) $I_F = 37.5\text{A}; -di/dt = 100\text{A}/\mu\text{s}; V_{DS} = 25\text{V}$		300	ns
R_{thJC} R_{thJH}	with heat transfer paste		0.93	0.5 K/W K/W

Features

- HiPerFET™ technology
 - low R_{DSon}
 - low gate charge for high frequency operation
 - unclamped inductive switching (UIS) capability
 - dv/dt ruggedness
 - fast intrinsic reverse diode
- ISOPLUS i4-PAC™ package
 - isolated back surface
 - low coupling capacity between pins and heatsink
 - enlarged creepage towards heatsink
 - application friendly pinout
 - low inductive current path
 - high reliability
 - industry standard outline
 - UL registered E 72873

Applications

- drives and power supplies
- battery or fuel cell powered
- automotive, industrial vehicle etc.
- secondary side of mains power supplies

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

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Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-55...+150	°C
T_{stg}		-55...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500	V~
F_c	mounting force with clip	20...120	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
C_p	coupling capacity between shorted pins and mounting tab in the case		40	pF
d_s, d_A	pin - pin	1.7		mm
d_s, d_A	pin - backside metal	5.5		mm
Weight				

Dimensions in mm (1 mm = 0.0394")
