

Trench Power MOSFET

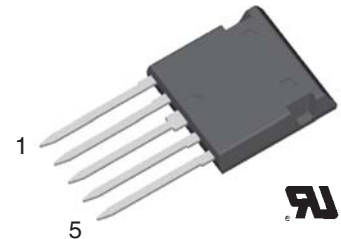
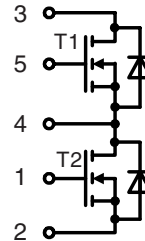
Phaseleg Topology
in ISOPLUS i4-PAC™

$$I_{D25} = 300 \text{ A}$$

$$V_{DSS} = 55 \text{ V}$$

$$R_{DSon typ.} = 2.7 \text{ m}\Omega$$

Preliminary data



MOSFET T1/T2

Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^{\circ}\text{C}$ to T_{VJmax}	55	V
V_{GS}		± 20	V
I_{D25}	$T_C = 25^{\circ}\text{C}$	300	A
I_{D90}	$T_C = 90^{\circ}\text{C}$	220	A
I_{F25}	(body diode) $T_C = 25^{\circ}\text{C}$	240	A
I_{F90}	(body diode) $T_C = 90^{\circ}\text{C}$	150	A

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
R_{DSon}	$V_{GS} = 10 \text{ V}; I_D = 150 \text{ A}$		2.7	3.6 m Ω
V_{GSth}	$V_{DS} = 20 \text{ V}; I_D = 2 \text{ mA}$	2		4 V
I_{DSS}	$V_{DS} = 55 \text{ V}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.2	2 μA mA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			200 nA
Q_g Q_{gs} Q_{gd}	$V_{GS} = 10 \text{ V}; V_{DS} = 44 \text{ V}; I_D = 50 \text{ A}$		172 36 50	nC nC nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10 \text{ V}; V_{DS} = 30 \text{ V}$ $I_D = 50 \text{ A}; R_G = 4.7 \Omega$		25 50 70 40	ns ns ns ns
V_F	(body diode) $I_F = 150 \text{ A}; V_{GS} = 0 \text{ V}$		1.1	1.5 V
t_{rr}	(body diode) $I_F = 40 \text{ A}; -di/dt = 200 \text{ A}/\mu\text{s}; V_{DS} = 30 \text{ V}$		100	ns
R_{thJC} R_{thJH}	with heat transfer paste		1	0.5 K/W K/W

Features

- trench MOSFET
 - very low on state resistance R_{DSon}
 - fast switching
- 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

- automotive
 - AC drives - starter generator for 12/14 V etc.
 - choppers - replacing series resistors for DC drives, heating etc.
 - DC-DC converters - between 12V and 42V system etc.
 - electronic switches -replacing relays and fuses
- power supplies
 - DC-DC converters
 - solar inverters
 - converters for fuel cells
- battery supplied systems
 - choppers or inverters for drives in hand held tools
 - battery chargers

Component

Symbol	Conditions	Maximum Ratings	
I_{RMS}	per pin	75	A
T_{VJ}		-55...+175	°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.
$R_{pin - chip}$			0.5	mΩ
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			9	g

Dimensions in mm (1 mm = 0.0394")
