

Trench Power MOSFET

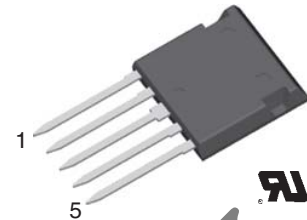
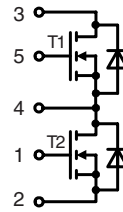
Phaseleg Topology
in ISOPLUS i4-PAC™

$$I_{D25} = 65 \text{ A}$$

$$V_{DSS} = 150 \text{ V}$$

$$R_{DSon\text{typ.}} = 12 \text{ m}\Omega$$

Preliminary data



MOSFET T1/T2

Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^\circ\text{C}$ to $T_{VJ\text{max}}$	150	V
V_{GS}		± 20	V
I_{D25}	$T_C = 25^\circ\text{C}$	65	A
I_{D90}	$T_C = 90^\circ\text{C}$	50	A
I_{F25}	(body diode) $T_C = 25^\circ\text{C}$	65	A
I_{F90}	(body diode) $T_C = 90^\circ\text{C}$	50	A

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
R_{DSon}	$V_{GS} = 10 \text{ V}; I_D = I_{D90}$		12	22
V_{GSth}	$V_{DS} = 20 \text{ V}; I_D = 1 \text{ mA}$	2		4
I_{DSS}	$V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		0.1	10
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			200
Q_g	$V_{GS} = 10 \text{ V}; V_{DS} = 120 \text{ V}; I_D = 75 \text{ A}$		230	nC
Q_{gs}			45	nC
Q_{gd}			90	nC
$t_{d(on)}$	$V_{GS} = 10 \text{ V}; V_{DS} = 0.5 \cdot V_{DSS}$ $I_D = 30 \text{ A}; R_{\theta e} = 5.6 \Omega$		35	ns
t_r			80	ns
$t_{d(off)}$			230	ns
t_f			100	ns
V_F	(body diode) $I_F = 32.5 \text{ A}; V_{GS} = 0 \text{ V}$		0.9	1.3
t_{rr}	(body diode) $I_F = 20 \text{ A}; -di/dt = 100 \text{ A}/\mu\text{s}; V_{DS} = 30 \text{ V}$		130	ns
R_{thJC}	with heat transfer paste			0.6
R_{thJH}			1.2	K/W

Features

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

- automotive and industrial vehicles
 - AC drives
 - choppers - replacing series resistors for DC drives, heating etc.
 - DC-DC converters
- electronic switches -replacing relays and fuses
- power supplies
 - DC-DC converters
 - solar inverters
- battery supplied systems
 - choppers or inverters for drives
 - 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.
C_p	coupling capacity between shorted pins and mounting tab in the case		40	pF
$d_{S^1}d_A$	pin - pin	1.7		mm
$d_{S^1}d_A$	pin - backside metal	5.5		mm
Weight			9	g

Dimensions in mm (1 mm = 0.0394")
