

HiPerFET™

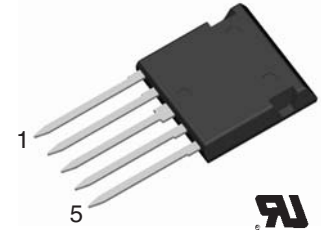
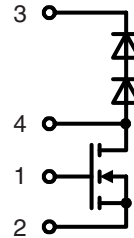
Power MOSFETs

-Boost Chopper Topology-
in ISOPLUS i4-PAC™

$$I_{D25} = 38 \text{ A}$$

$$V_{DSS} = 600 \text{ V}$$

$$R_{DSon} = 60 \text{ m}\Omega$$



| MOSFET | | |
|-----------|--------------------------------------------------------|-----------------|
| Symbol | Conditions | Maximum Ratings |
| V_{DSS} | $T_{VJ} = 25^{\circ}\text{C}$ to 150°C | 600 V |
| V_{GS} | | ± 20 V |
| I_{D25} | $T_C = 25^{\circ}\text{C}$ | 38 A |
| I_{D90} | $T_C = 90^{\circ}\text{C}$ | 25 A |

Features

- fast CoolMOS power MOSFET - 3rd generation
 - high blocking voltage
 - low on resistance
 - low thermal resistance due to reduced chip thickness
- HiPerDyn™ FRED
 - consisting of series connected diodes
 - enhanced dynamic behaviour for high frequency operation
- 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

| Symbol | Conditions | Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified) | | |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------|--------------------------------------|
| | | min. | typ. | max. |
| R_{DSon} | $V_{GS} = 10 \text{ V}; I_D = 20 \text{ A}$ | | 60 | 70 mΩ |
| V_{GSth} | $V_{DS} = 20 \text{ V}; I_D = 2.7 \text{ mA}$ | 2.1 | | 3.9 V |
| I_{DSS} | $V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | | 250 | 25 μA 25 μA |
| I_{GSS} | $V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$ | | | 200 nA |
| Q_g Q_{gs} Q_{gd} | $V_{GS} = 10 \text{ V}; V_{DS} = 350 \text{ V}; I_D = 47 \text{ A}$ | | 250 | nC |
| | | | 25 | nC |
| | | | 120 | nC |
| $t_{d(on)}$ t_r $t_{d(off)}$ t_f | $V_{GS} = 10 \text{ V}; V_{DS} = 380 \text{ V};$ $I_D = 47 \text{ A}; R_G = 1.8 \Omega$ | | 20 | ns |
| | | | 30 | ns |
| | | | 110 | ns |
| | | | 10 | ns |
| V_F | (reverse conduction) $I_F = 20 \text{ A}; V_{GS} = 0 \text{ V}$ | | 0.9 | V |
| R_{thJC} R_{thJS} | | | tbd | 0.45 K/W K/W |

Applications

- chopper for power factor correction
- supply of high frequency transformer
 - switched mode power supplies
 - welding converters

Free Wheeling Diode (data for series connection)

| Symbol | Conditions | Maximum Ratings | |
|-----------|-------------------------------------------------------|-----------------|---|
| V_{RRM} | $T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$ | 600 | V |
| I_{F25} | $T_C = 25^{\circ}\text{C}$ | 80 | A |
| I_{F90} | $T_C = 90^{\circ}\text{C}$ | 45 | A |

| Symbol | Conditions | Characteristic Values | | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------|------|------|
| | | min. | typ. | max. |
| V_F | $I_F = 20 \text{ A}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | 2.6 | 2.9 | V |
| I_R | $V_R = V_{RRM}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | 0.25 | 0.25 | mA |
| I_{RM} t_{rr} | } $I_F = 30 \text{ A}; di_F/dt = -500 \text{ A}/\mu\text{s}; T_{VJ} = 125^{\circ}\text{C}$ $V_R = 300 \text{ V}$ | 9 | | A |
| | | 40 | | ns |
| R_{thJC} R_{thJS} | (per diode) | tbd | 0.65 | K/W |

Component

| Symbol | Conditions | Maximum Ratings | |
|------------|------------------------------------------------|-----------------|--------------------|
| T_{VJ} | | -55...+150 | $^{\circ}\text{C}$ |
| T_{stg} | | -55...+125 | $^{\circ}\text{C}$ |
| 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 | | | 9 | g |

Dimensions in mm (1 mm = 0.0394")
