

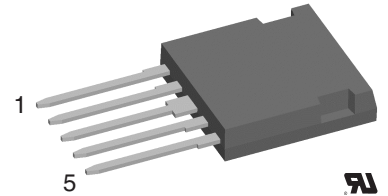
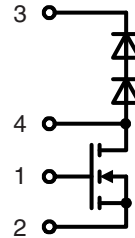
# HiPerFET™ CoolMOS™ 1) Power MOSFETs

-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 $150^{\circ}\text{C}$	600 V
$V_{GS}$		$\pm 20$ V
$I_{D25}$	$T_C = 25^{\circ}\text{C}$	38 A
$I_{D90}$	$T_C = 90^{\circ}\text{C}$	25 A

## Features

- fast CoolMOS™ 1) power MOSFET 3<sup>rd</sup> 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 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

<sup>1)</sup> CoolMOS™ is a trademark of  
Infineon Technologies AG.

**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)	tdb		0.65 K/W 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")**
