Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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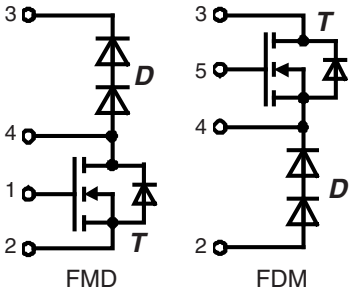
CoolMOS™ [1] Power MOSFET with HiPerDyn ™ FRED

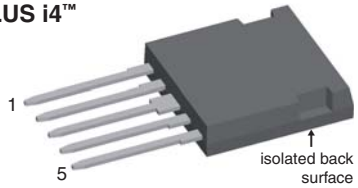
Buck and Boost Topologies

I_{D25} = 15 A
V_{DSS} = 600 V
$R_{DS(on)\ max}$ = 0.165 Ω

Electrically isolated back surface
2500 V electrical isolation
N-Channel Enhancement Mode
Low R_{DSon}, high V_{DSS} MOSFET
Ultra low gate charge



ISOPLUS i4™



E72873

MOSFET T					
Symbol	**Conditions**			**Maximum Ratings**	
V_{DSS}	T_{VJ} = 25°C			600	V
V_{GS}				± 20	V
I_{D25}	T_C = 25°C			15	A
I_{D90}	T_C = 90°C			11	A
E_{AS}	single pulse	I_D = 7.9 A; T_C = 25°C		522	mJ
E_{AR}	repetitive			0.79	mJ
dV/dt	MOSFET dV/dt ruggedness V_{DS} = 0...480 V			50	V/ns

Symbol	**Conditions**		**Characteristic Values** (T_{VJ} = 25°C, unless otherwise specified)			
			min.	typ.	max.	
R_{DSon}	V_{GS} = 10 V; I_D = 12 A			150	165	mΩ
$V_{GS(th)}$	$V_{DS} = V_{GS}$; I_D = 0.79 mA		2.5	3	3.5	V
I_{DSS}	V_{DS} = 600 V; V_{GS} = 0 V	T_{VJ} = 25°C			1	µA
		T_{VJ} = 125°C		10		µA
I_{GSS}	V_{GS} = ± 20 V; V_{DS} = 0 V				100	nA
C_{iss}	V_{GS} = 0 V; V_{DS} = 100 V			2000		pF
C_{oss}	f = 1 MHz			100		pF
Q_g	V_{GS} = 0 to 10 V; V_{DS} = 400 V; I_D = 12 A			40	52	nC
Q_{gs}				9		nC
Q_{gd}				13		nC
$t_{d(on)}$	V_{GS} = 10 V; V_{DS} = 400 V; I_D = 12 A; R_G = 3.3 Ω			12		ns
t_r				5		ns
$t_{d(off)}$				50		ns
t_f				5		ns
E_{on}				tbd		mJ
E_{off}				tbd		mJ
$E_{rec\ off}$				tbd		mJ
R_{thJC}					1.1	K/W
R_{thCH}	with heat transfer paste			0.35		K/W

Features

- Silicon chip on Direct-Copper-Bond substrate
  - high power dissipation
  - isolated mounting surface
  - 2500 V electrical isolation
  - low drain to tab capacitance (< 40 pF)
- Fast CoolMOS™ [1] power MOSFET 4th generation
  - high blocking capability
  - lowest resistance
  - avalanche rated for unclamped inductive switching (UIS)
  - low thermal resistance due to reduced chip thickness
- Enhanced total power density
- HiPerDyn™ FRED
  - consisting of series connected diodes
  - enhanced dynamic behaviour for high frequency operation

Applications

- Switched mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Power factor correction (PFC)

Advantages

- Easy assembly: no screws or isolation foils required
- Space savings
- High power density
- High reliability

[1] CoolMOS™ is a trademark of Infineon Technologies AG.

MOSFET T Source-Drain Diode

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
I_S	V_{GS} = 0 V			12	A
V_{SD}	I_F = 12 A; V_{GS} = 0 V		0.9	1.2	V
t_{rr}	I_F = 12 A; -di_F/dt = 100 A/µs; V_R = 400 V		390		ns
Q_{RM}			7.5		µC
I_{RM}			38		A

Diode D (data for series connection)

Symbol	Conditions	Maximum Ratings	
V_{RRM}	T_{VJ} = 25°C to 150°C	600	V
I_{F25}	T_C = 25°C	15	A
I_{F90}	T_C = 90°C	8	A

Symbol	Conditions		Characteristic Values min.	typ.	max.	
V_F	I_F = 15 A	T_{VJ} = 25°C			2.50	V
	I_F = 30 A				3.00	V
	I_F = 15 A	T_{VJ} = 150°C			2.00	A
	I_F = 30 A				2.55	A
I_R	V_R = V_{RRM}	T_{VJ} = 25°C			1	µA
		T_{VJ} = 150°C			0.08	mA
I_{FSM}	t = 10 ms (50 Hz), sine;	T_{VJ} = 45°C			150	A
I_{RM}	I_F = 20 A; V_R = 100 V;	T_{VJ} = 25°C			3	A
t_{rr}	-di_F/dt = 200 A/µs				35	ns
R_{thJC}					2.4	K/W
R_{thJH}	with heat transfer paste			0.8		K/W

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}	operating	-55...+150	°C
T_{stg}	storage	-55...+125	°C
V_{ISOL}	I_{ISOL} < 1 mA; 50/60 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

ISOPLUS i4™ Outline