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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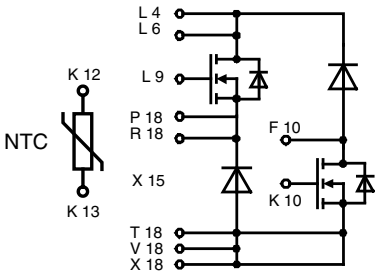
CoolMOS Power MOSFET
in ECO-PAC 2

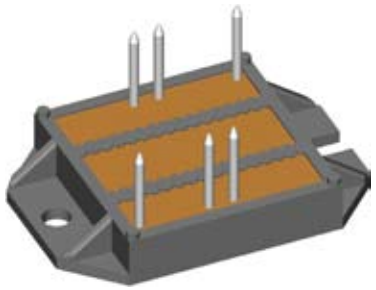
I_{D25} = 38 A
V_{DSS} = 600 V
R_{DSon} = 70 mΩ

N-Channel Enhancement Mode
Low R_{DSon}, High V_{DSS} MOSFET
Package with Electrically Isolated Base

Preliminary data



COOLMOS Power Semiconductors 1)



Pin arrangement see outlines

MOSFET			
Symbol	**Conditions**	**Maximum Ratings**	
V_{DSS}	T_{VJ} = 25°C to 150°C	600	V
V_{GS}		± 20	V
I_{D25}	T_C = 25°C	38	A
I_{D90}	T_C = 90°C	25	A
d_V/dt	$V_{DS} < V_{DSS}$; $I_F \leq 50$ A; $\lvert di_F/dt \rvert \leq 200$ A/µs; T_{VJ} = 150°C	6	V/ns
E_{AS}	I_D = 10 A; T_C = 25°C	1.8	J
E_{AR}	I_D = 20 A; T_C = 25°C	1	mJ

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
R_{DSon}	V_{GS} = 10 V; $I_D = I_{D90}$			70	mΩ
$V_{GS(th)}$	V_{DS} = 20 V; I_D = 3 mA	3.5		5.5	V
I_{DSS}	$V_{DS} = V_{DSS}$; V_{GS} = 0 V; T_{VJ} = 25°C			25	µA
	T_{VJ} = 125°C		60		µA
I_{GSS}	V_{GS} = ± 20 V; V_{DS} = 0 V			100	nA
Q_g	V_{GS} = 10 V; V_{DS} = 350 V; I_D = 50 A		220		nC
Q_{gs}			55		nC
Q_{gd}			125		nC
$t_{d(on)}$	V_{GS} = 10 V; V_{DS} = 380 V; I_D = 25 A; R_G = 1.8 Ω		30		ns
t_r			95		ns
$t_{d(off)}$			100		ns
t_f			10		ns
R_{thJC}	per MOSFET			0.45	K/W

Data according ot IEC 60747 refer to a single diode or transistor unless otherwise stated

Applications

- ECO-PAC 2 with DCB Base
  - Electrical isolation towards the heatsink
  - Low coupling capacitance to the heatsink for reduced EMI
  - High power dissipation
  - High temperature cycling capability of chip on DCB
  - solderable pins for DCB mounting
- fast CoolMOS power MOSFET
  - High blocking capability
  - Low on resistance
  - Avalanche rated for unclamped inductive switching (UIS)
  - Low thermal resistance due to reduced chip thickness
- Enhanced total power density

Applications

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

1) CoolMOS is a trademark of Infineon Technologies AG.

Source-Drain Diode

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
I_S	Inverse diode forward current			47	A
I_{SM}	Inverse diode direct current pulsed			141	A
V_{SD}	Inverse diode forward voltage V_{GS} = 0 V; $I_F = I_S$		1	1.2	V
t_{rr}	V_R = 350 V; $I_F = I_S$; di_F/dt = 100 A/µs		580		ns
Q_{rr}			23		µC
I_{RM}			73		A
di_{rr}/dt			900		A/µs

Reverse diodes (FRED)

Symbol	Conditions	Maximum Ratings	
I_{F25}	T = 25°C	18.5	A
I_{F80}	T = 80°C	12.0	A

Symbol	Conditions	Characteristic Values min.	typ.	max.	
V_F	I_F = 15 A; T = 25°C	11.2			mm
	T = 125°C	11.2			mm
I_{RM}	I_F = 10 A; di_F/dt = 400 A/µs; T = 125°C		7		A
t_{rr}	V_R = 300 V; V_{GE} = 0 V		70		ns
R_{thJC}				0.35	K/W
R_{thJH}	with heatsink compound (0.42 K/m.K; 50 µm)		7		K/W

Temperature Sensor NTC

Symbol	Conditions	Characteristic Values min.	typ.	max.	
R_{25}	T = 25°C	4.75	5.0	5.25	kΩ
$B_{25/50}$			3375		K

Module

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	$I_{ISOL} \leq$ 1 mA; 50/60 Hz; t = 1 s	3600	V~
M_d	mounting torque (M4)	1.5 - 2.0	Nm
		14 - 18	lb.in
a	Max. allowable acceleration	50	m/s^2

Symbol	Conditions	Characteristic Values min.	typ.	max.	
d_S	Creepage distance on surface (pin to heatsink)	11.2			mm
d_A	Strike distance in air (pin to heatsink)	11.2			mm
Weight			24		g

20091214a

Dimensions in mm (1 mm = 0.0394")