POWERSEM

ECO-PAC™ 2

CoolMOS Power MOSFET
in ECO-PAC 2

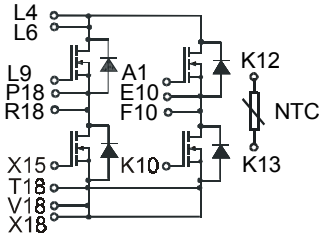
PSHM 40/06

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

COOLMOS™ [1)]

Preliminary Data Sheet



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
dv/dt	$V_{DS} < V_{DSS}$; $I_F \le 50A$; $\lvert di_F/dt \rvert \le 200A/\mu s$ T_{VJ} = 150°C	6	V/ns
E_{AS}	I_D = 10 A; L = 36 mH; T_C = 25°C	1.8	J
E_{AR}	I_D = 20 A; L = 5 µH; 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_{GSth}	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
V_F	(reverse conduction) I_F = 20 A; V_{GS} = 0 V		0.9	1.1	V
R_{thJC}	per MOSFET			0.45	K/W

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

Caution: These Devices are sensitive to electrostatic discharge. Users should observe proper ESD handling precautions.

Features

- 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 - 2nd generation
  - 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
- UL registered, E 148688

Applications

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

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- High power density
- Small and light weight

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

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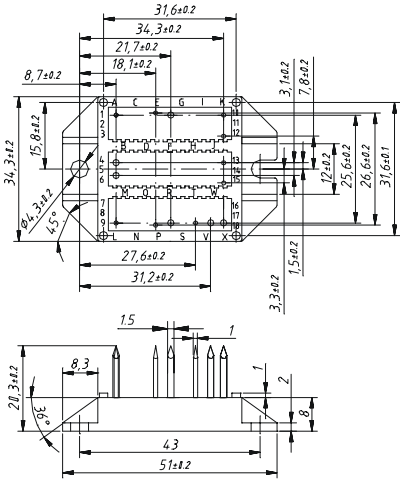
Temperature Sensor NTC

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

Dimensions in mm (1 mm = 0.0394")



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

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