CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SURFACE MOUNT
N-Channel Enhancement Mode Field Effect Transistor
VOLTAGE 60 Volts CURRENT 50 Ampere

CHM50N06NGP

APPLICATION

* Servo motor control.
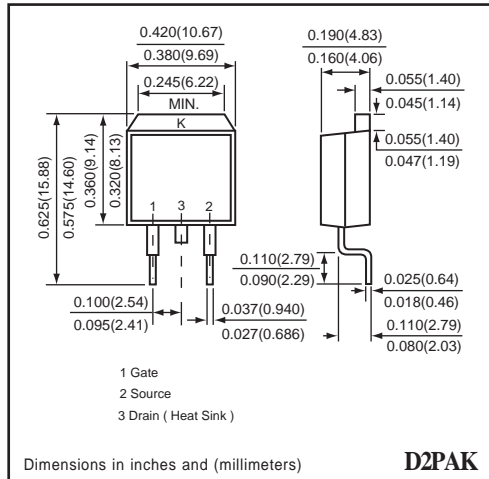* Power MOSFET gate drivers.
* Other switching applications.

FEATURE

* Small package. (D2PAK)
* Super high dense cell design for extremely low $R_{DS(ON)}$.
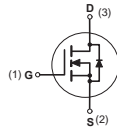* High power and current handing capability.

CONSTRUCTION

* N-Channel Enhancement

CIRCUIT

D (3)
(1) G
S (2)

D2PAK

0.420(10.67)
0.380(9.69)
0.245(6.22) MIN.
K
0.625(15.88)
0.575(14.60)
0.360(9.14)
0.320(8.13)
1 3 2

0.190(4.83)
0.160(4.06)
0.055(1.40)
0.045(1.14)
0.055(1.40)
0.047(1.19)

0.110(2.79)
0.090(2.29)
0.100(2.54)
0.095(2.41)
0.037(0.940)
0.027(0.686)
0.025(0.64)
0.018(0.46)
0.110(2.79)
0.080(2.03)

1 Gate
2 Source
3 Drain (Heat Sink)

Dimensions in inches and (millimeters) **D2PAK**

Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter	CHM50N06NGP	Units
V_{DSS}	Drain-Source Voltage	60	V
V_{GSS}	Gate-Source Voltage	±20	V
I_D	Maximum Drain Current - Continuous	50	A
	- Pulsed (Note 3)	150	
P_D	Maximum Power Dissipation at Tc = 25°C	131	W
T_J	Operating Temperature Range	-55 to 150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C

Note : 1. Surface Mounted on FR4 Board , t <=10sec
2. Pulse Test , Pulse width <= 300us , Duty Cycle <= 2%
3. Repetitive Rating , Pulse width linited by maximum junction temperature
4. Guaranteed by design , not subject to production trsting

Thermal characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1)	62.5	°C/W

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ELECTRICAL CHARACTERISTIC (CHM50N06NGP)

Electrical Characteristics $T_A = 25°C$ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0$ V, $I_D = 250$ μA	60			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 54$ V, $V_{GS} = 0$ V			1	μA
I_{GSSF}	Gate-Body Leakage	$V_{GS} = 20V, V_{DS} = 0$ V			+100	nA
I_{GSSR}	Gate-Body Leakage	$V_{GS} = -20V$, $V_{DS} = 0$ V			-100	nA
ON CHARACTERISTICS (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 250$ μA	2		4	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=50A$		14	22	mΩ
g_{FS}	Forward Transconductance	$V_{DS} =10V$, $I_D = 25A$		19		S

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = 25V$, $V_{GS} = 0V$, $f = 1.0$ MHz		1420		
C_{oss}	Output Capacitance			400		pF
C_{rss}	Reverse Transfer Capacitance			50		

SWITCHING CHARACTERISTICS (Note 4)

Q_g	Total Gate Charge	$V_{DS}=48V$, $I_D=48A$ $V_{GS}=10V$		28.2	37.5	nC
Q_{gs}	Gate-Source Charge			8.5		
Q_{gd}	Gate-Drain Charge			7		
t_{on}	Turn-On Time	$V_{DD}= 30V$ $I_D = 48A$, $V_{GS} = 10$ V $R_{GEN} = 7.5 \, \Omega$		17.2	34.4	nS
t_r	Rise Time			5	10	
t_{off}	Turn-Off Time			32.5	65	
t_f	Fall Time			10	20	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I_S	Drain-Source Diode Forward Current	(Note 1)			50	A
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = 50A$, $V_{GS} = 0$ V (Note 2)			1.5	V