



CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT

N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 75 Volts CURRENT 80 Ampere

CHM80N75NPT

Lead free devices

APPLICATION

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

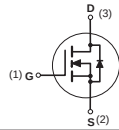
FEATURE

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

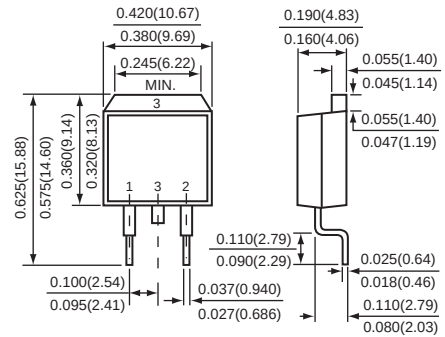
CONSTRUCTION

- * N-Channel Enhancement

CIRCUIT



D2PAK



- 1 Gate
- 2 Source
- 3 Drain (Heat Sink)

Dimensions in inches and (millimeters)

D2PAK

Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	CHM80N75NPT	Units
V_{DS}	Drain-Source Voltage	75	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Maximum Drain Current - Continuous	80	A
	- Pulsed (Note 3)	320	
P_D	Maximum Power Dissipation at $T_c = 25^\circ\text{C}$	200	W
T_J	Operating Temperature Range	-55 to 175	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$

Note : 1. Surface Mounted on FR4 Board , $t \leq 10\text{sec}$

2. Pulse Test , Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

3. Repetitive Rating , Pulse width limited 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	$^\circ\text{C/W}$
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ELECTRICAL CHARACTERISTIC (CHM80N75NPT)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
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OFF CHARACTERISTICS

BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	75			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 60\text{ V}, V_{GS} = 0\text{ V}$			1	μA
I_{GSSF}	Gate-Body Leakage	$V_{GS} = 20\text{ V}, V_{DS} = 0\text{ V}$			+100	nA
I_{GSSR}	Gate-Body Leakage	$V_{GS} = -20\text{ V}, V_{DS} = 0\text{ V}$			-100	nA

ON CHARACTERISTICS (Note 2)

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	2		4	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{ V}, I_D=40\text{ A}$		10	13	$\text{m}\Omega$
g_{FS}	Forward Transconductance	$V_{DS}=15\text{ V}, I_D = 40\text{ A}$		45		S

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$		3550		pF
C_{oss}	Output Capacitance			580		
C_{rss}	Reverse Transfer Capacitance			40		

SWITCHING CHARACTERISTICS (Note 4)

Q_g	Total Gate Charge	$V_{DS}=60\text{ V}, I_D=75\text{ A}$ $V_{GS}=10\text{ V}$		79.3	105.5	nC
Q_{gs}	Gate-Source Charge			20.6		
Q_{gd}	Gate-Drain Charge			25.9		
t_{on}	Turn-On Time	$V_{DD}= 37.5\text{ V}$ $I_D = 45\text{ A}, V_{GS}= 10\text{ V}$ $R_{GEN}= 4.7\text{ }\Omega$		24	48	nS
t_r	Rise Time			5	10	
t_{off}	Turn-Off Time			61	122	
t_f	Fall Time			18	36	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I_S	Drain-Source Diode Forward Current	(Note 1)			75	A
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = 75\text{ A}, V_{GS} = 0\text{ V}$ (Note 2)			1.5	V

RATING CHARACTERISTIC CURVES (CHM80N75NPT)

Typical Electrical Characteristics

Figure 1. Output Characteristics

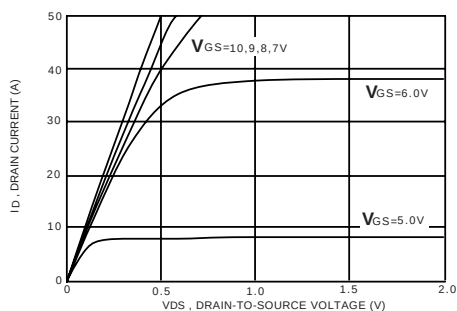


Figure 2. Transfer Characteristics

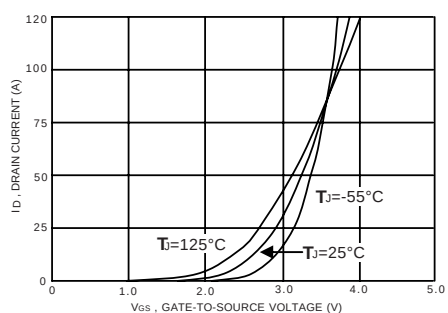


Figure 3. Gate Charge

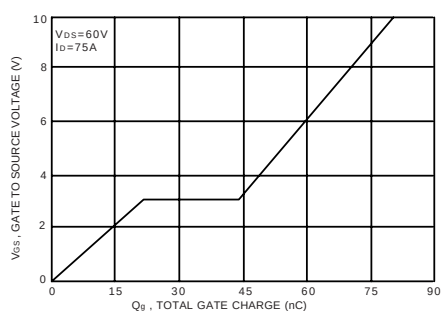


Figure 4. On-Resistance Variation with Temperature

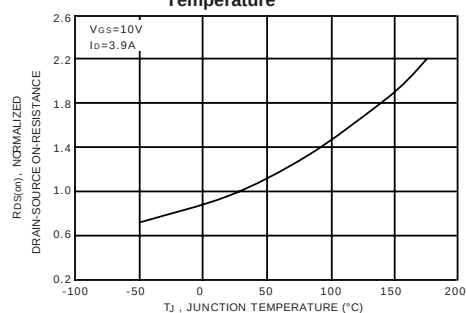


Figure 5. Gate Threshold Variation with Temperature

