



Halogens free devices

# CHENMKO ENTERPRISE CO.,LTD

## SURFACE MOUNT

### N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 60 Volts CURRENT 60 Ampere

CHM6060RNGP

#### APPLICATION

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

#### FEATURE

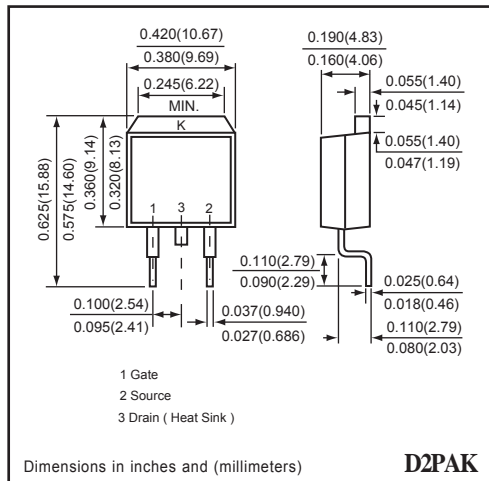
- \* Small package. (D2PAK)
- \* Super high dense cell design for extremely low  $R_{DS(ON)}$ .
- \* High power and current handling capability.

#### CONSTRUCTION

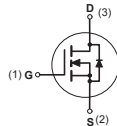
- \* N-Channel Enhancement



D2PAK



#### CIRCUIT



#### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	CHM6060RNGP	Units
$V_{DSS}$	Drain-Source Voltage	60	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Maximum Drain Current - Continuous	60	A
	- Pulsed (Note 3)	144	
$P_D$	Maximum Power Dissipation at $T_c = 25^\circ\text{C}$	100	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 ( CHM6060RNGP )

**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	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	60			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 60\text{ V}, V_{GS} = 0\text{ V}$			25	$\mu\text{A}$
$I_{GSSF}$	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	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	2		4	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{V}, I_D=24\text{A}$		19	25	$\text{m}\Omega$
$g_{FS}$	Forward Transconductance	$V_{DS} = 10\text{V}, I_D = 24\text{A}$		20		S

### Dynamic Characteristics

$C_{iss}$	Input Capacitance	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V},$ $f = 1.0\text{ MHz}$		1178		pF
$C_{oss}$	Output Capacitance			428		
$C_{riss}$	Reverse Transfer Capacitance			95		

### SWITCHING CHARACTERISTICS (Note 4)

$Q_g$	Total Gate Charge	$V_{DS}=48\text{V}, I_D=48\text{A}$ $V_{GS}=10\text{V}$		36	43	nC
$Q_{gs}$	Gate-Source Charge			9		
$Q_{gd}$	Gate-Drain Charge			19		
$t_{on}$	Turn-On Time	$V_{DD}= 30\text{V}$ $I_D = 48\text{A}, V_{GS} = 10\text{ V}$ $R_{GEN}= 7.5\ \Omega$		15	20	nS
$t_r$	Rise Time			250	300	
$t_{off}$	Turn-Off Time			45	60	
$t_f$	Fall Time			130	150	

### DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

$I_S$	Drain-Source Diode Forward Current	(Note 1)			60	A
$V_{SD}$	Drain-Source Diode Forward Voltage	$I_S = 24\text{A}, V_{GS} = 0\text{ V}$			1.3	V