



Halogens free devices

CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 120 Volts CURRENT 10 Ampere

CHM1012PA; D

APPLICATION

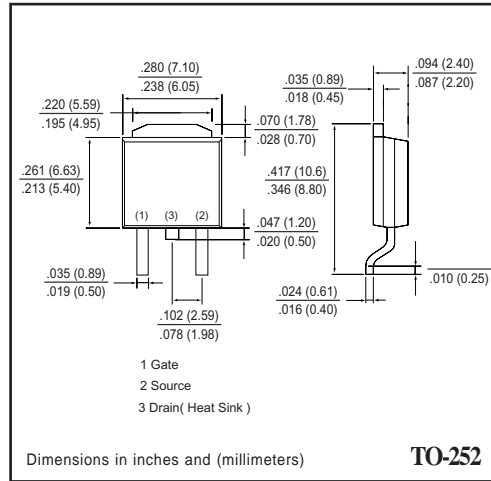
- * Servo motor control.
- * Power MOSFET gate drivers.
- * Other switching applications.

FEATURE

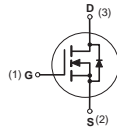
- * Small package. (TO-252)
- * Super high dense cell design for extremely low $R_{DS(ON)}$.
- * High power and current handling capability.

CONSTRUCTION

- * N-Channel Enhancement



CIRCUIT



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

Symbol	Parameter	7 < A% & D5 ; D	Units
V_{DSS}	Drain-Source Voltage	120	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Maximum Drain Current - Continuous	10	A
	- Pulsed (Note 3)	40	
P_D	Maximum Power Dissipation at $T_c = 25^\circ\text{C}$	50	W
T_J	Operating Temperature Range	-55 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$

- 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)	50	$^\circ\text{C/W}$
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9 @ 7 HF 7 5 @ CHARACTERISTIC (7 < A % % & D 5 ; D)

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	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	120			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}$			25	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	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	2		4	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = 10\text{ V}, I_D = 10\text{ A}$		100	120	$\text{m}\Omega$
g_{FS}	Forward Transconductance	$V_{DS} = 10\text{ V}, I_D = 5\text{ A}$	3	5		S

SWITCHING CHARACTERISTICS (Note 4)

Q_g	Total Gate Charge	$V_{DS} = 96\text{ V}, I_D = 10\text{ A}$ $V_{GS} = 10\text{ V}$		47.5	57	nC
Q_{gs}	Gate-Source Charge			5		
Q_{gd}	Gate-Drain Charge			16		
t_{on}	Turn-On Time	$V_{DD} = 30\text{ V}$ $I_D = 10\text{ A}, V_{GS} = 10\text{ V}$ $R_{GEN} = 51\ \Omega$		40	60	nS
t_r	Rise Time			85	120	
t_{off}	Turn-Off Time			56	80	
t_f	Fall Time			35	50	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I_S	Drain-Source Diode Forward Current			10	A	
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = 10\text{ A}, V_{GS} = 0\text{ V}$		0.85	1.2	V