



CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT

N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 30 Volts CURRENT 20 Ampere

CHM603ALPAPT

Lead free devices

APPLICATION

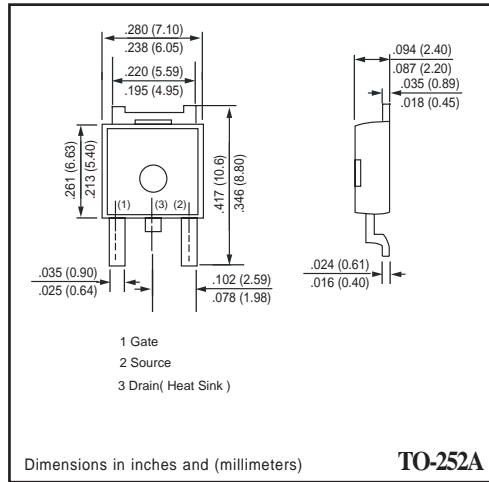
- * Servo motor control.
- * Power MOSFET gate drivers.
- * Other switching applications.

FEATURE

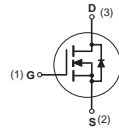
- * Small package. (TO-252A)
- * Super high dense cell design for extremely low R_{DS(ON)}.
- * High power and current handling capability.

CONSTRUCTION

- * N-Channel Enhancement



CIRCUIT



Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter	CHM603ALPAPT	Units
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Maximum Drain Current - Continuous	20	A
	- Pulsed (Note 3)	77	
P _D	Maximum Power Dissipation at T _c = 25°C	50	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 limited by maximum junction temperature
 4. Guaranteed by design , not subject to production trsting

Thermal characteristics

R _{θJA}	Thermal Resistance, Junction-to-Ambient (Note 1)	50	°C/W
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RATING CHARACTERISTIC CURVES (CHM603ALPAPT)

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	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$			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	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1	1.6	3	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{V}, I_D=20\text{A}$		18	22	m Ω
		$V_{GS}=4.5\text{V}, I_D=10\text{A}$		28	40	
g_{FS}	Forward Transconductance	$V_{DS} = 10\text{V}, I_D = 25\text{A}$		35		S

SWITCHING CHARACTERISTICS (Note 4)

Q_g	Total Gate Charge	$V_{DS}=24\text{V}, I_D=20\text{A}$ $V_{GS}=10\text{V}$		20	26	nC
Q_{gs}	Gate-Source Charge			3		
Q_{gd}	Gate-Drain Charge			5		
t_{on}	Turn-On Time	$V_{DD}= 15\text{V}$ $I_D=20\text{A}, V_{GS}= 10\text{ V}$ $R_{GEN}= 24\ \Omega$		15	30	nS
t_r	Rise Time			55	110	
t_{off}	Turn-Off Time			95	150	
t_f	Fall Time			100	130	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I_S	Drain-Source Diode Forward Current			20	A	
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = 25\text{A}, V_{GS} = 0\text{ V}$		0.95	1.3	V