



CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SURFACE MOUNT
P-Channel Enhancement Mode Field Effect Transistor
VOLTAGE 40 Volts CURRENT 28 Ampere

CHM4201PAGP

APPLICATION

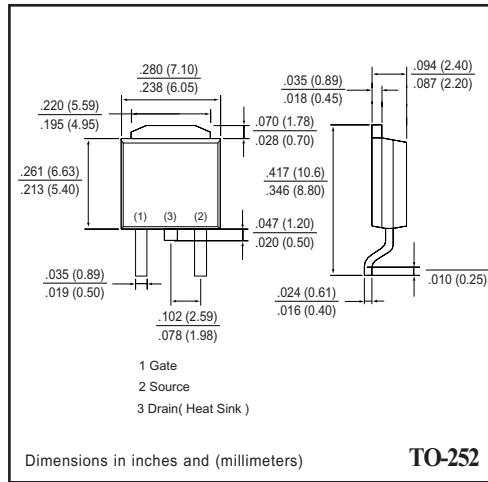
- * Servo motor control.
- * Power MOSFET gate drivers.
- * Other switching applications.

FEATURE

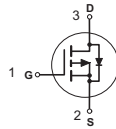
- * Small flat package. (TO-252)
- * Super high density cell design for extremely low R_{DS(ON)}.
- * High power and current handling capability.

CONSTRUCTION

- * P-Channel Enhancement



CIRCUIT



Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter	CHM4201PAGP	Units
V _{DSS}	Drain-Source Voltage	-40	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Maximum Drain Current - Continuous	-28	A
	- Pulsed (Note 3)	-112	
P _D	Maximum Power Dissipation	38	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 (CHM4201PAGP)

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	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-40			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -40\text{V}, V_{GS} = 0\text{ V}$			-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		-3	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = -10\text{V}, I_D = -18\text{A}$		20	26	$\text{m}\Omega$
		$V_{GS} = -4.5\text{V}, I_D = -8\text{A}$		28	36	
g_{FS}	Forward Transconductance	$V_{DS} = -5\text{V}, I_D = -4.8\text{A}$		12		S

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = -20\text{V}, V_{GS} = 0\text{V},$ $f = 1.0\text{ MHz}$		1760		pF
C_{oss}	Output Capacitance			220		
C_{rss}	Reverse Transfer Capacitance			150		

SWITCHING CHARACTERISTICS (Note 4)

Q_g	Total Gate Charge	$V_{DS} = -20\text{V}, I_D = -4.1\text{A}$ $V_{GS} = -4.5\text{V}$		18	23	nC
Q_{gs}	Gate-Source Charge			5		
Q_{gd}	Gate-Drain Charge			7		
t_{on}	Turn-On Time	$V_{DD} = -15\text{V}$ $I_D = -1\text{A}, V_{GS} = -10\text{ V}$ $R_{GEN} = 6\ \Omega$		16	32	nS
t_r	Rise Time			6	12	
t_{off}	Turn-Off Time			61	122	
t_f	Fall Time			15	30	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I_S	Drain-Source Diode Forward Current	(Note 1)			-28	A
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = -28\text{A}, V_{GS} = 0\text{ V}$ (Note 2)			-1.3	V

RATING CHARACTERISTIC CURVES (CHM4201PAGP)

Typical Electrical Characteristics

Figure 1. Output Characteristics

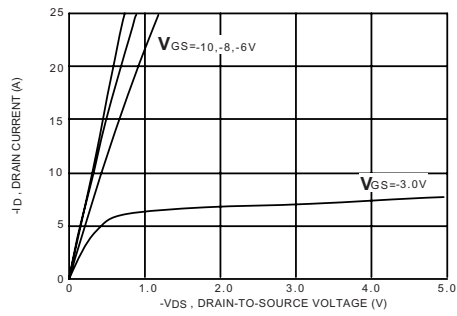


Figure 2. Transfer Characteristics

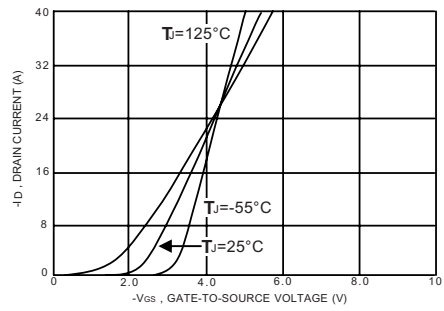


Figure 3. Gate Charge

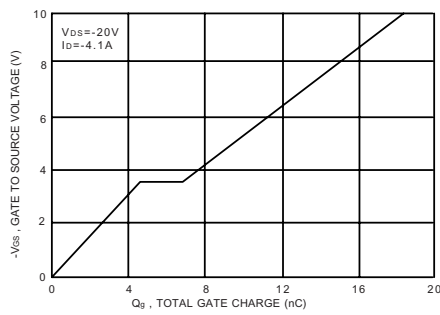


Figure 4. On-Resistance Variation with Temperature

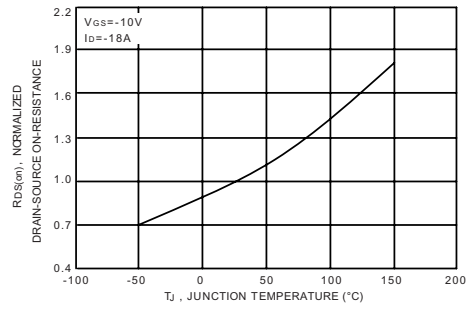


Figure 5. Gate Threshold Variation with Temperature

