CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

CHM310GP

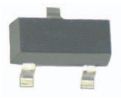
SURFACE MOUNT
N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 100 Volts CURRENT 170 mAmpere

APPLICATION
* Servo motor control.
* Other switching applications.

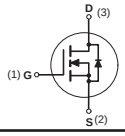
FEATURE
* Small flat package. (SOT-23)
* High density cell design for extremely low $R_{DS(ON)}$.
* Rugged and reliable.
* High saturation current capability.

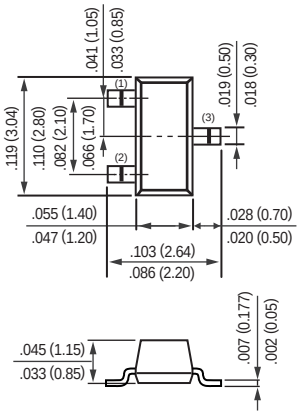
CONSTRUCTION
* N-Channel Enhancement



SOT-23

CIRCUIT





Dimensions in inches and (millimeters)

SOT-23

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Symbol	Parameter	CHM310GP	Units
V_{DSS}	Drain-Source Voltage	100	V
V_{GSS}	Gate-Source Voltage	±20	V
I_D	Maximum Drain Current - Continuous	170	mA
	- Pulsed (Note 1)	680	
P_D	Maximum Power Dissipation (Note 1)	300	mW
T_J	Operating Temperature Range	-55 to 150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C

Note : 1. Part mounted on FR-4 board with recommended pad layout.
2. Short duration test pulse used to minimize self-heating effect

Thermal characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1)	417	°C/W

2007-01

RATING CHARACTERISTIC CURVES (CHM310GP)

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 10 μA	100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 100 V, V_{GS} = 0 V			100	nA
I_{GSSF}	Gate-Body Leakage	V_{GS} = 20V, V_{DS} = 0 V			+50	nA
I_{GSSR}	Gate-Body Leakage	V_{GS} = -20V, V_{DS} = 0 V			-50	nA
ON CHARACTERISTICS (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 1 mA	0.8		2.8	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=4.5V, I_D=170mA		5	9	Ω
		V_{GS}=10V, I_D=170mA		4.5	6	
g_{FS}	Forward Transconductance	V_{DS} =10V, I_D = 4.0A	80			mS
SWITCHING CHARACTERISTICS						
Q_g	Total Gate Charge	V_{DS}=10V, I_D=0.22A V_{GS}=10V		1.4	2	nC
Q_{gs}	Gate-Source Charge			0.15		
Q_{gd}	Gate-Drain Charge			0.2		
t_{on}	Turn-On Time	V_{DD}= 30V I_D = 0.28A, V_{GS} = 10 V R_{GEN} = 50 Ω			8	nS
t_r	Rise Time				8	
t_{off}	Turn-Off Time				13	
t_f	Fall Time				16	
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I_S	Drain-Source Diode Forward Current				115	mA
V_{SD}	Drain-Source Diode Forward Voltage	I_S = 115mA, V_{GS} = 0 V			1.4	V

RATING CHARACTERISTIC CURVES (CHM310GP)

Typical Electrical Characteristics

Figure 1. Output Characteristics

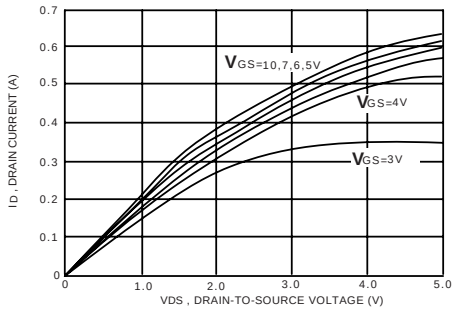


Figure 2. I_D vs $R_{DS(ON)}$ Characteristics

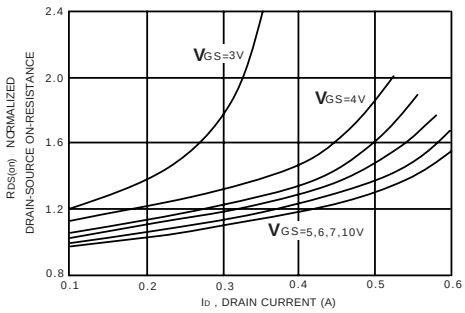


Figure 3. Gate Threshold Variation with Temperature

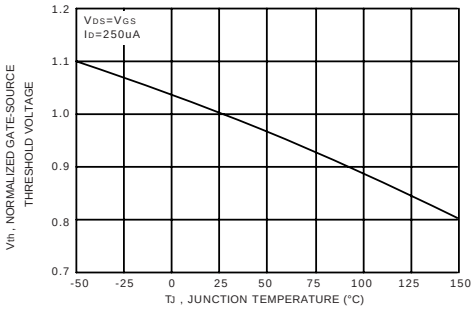


Figure 4. On-Resistance Variation with Temperature