CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

CHM2308ESGP

SURFACE MOUNT
N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 20 Volts CURRENT 5.4 Ampere

APPLICATION

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

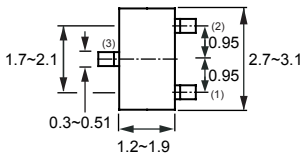
FEATURE

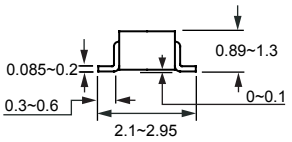
* Small flat package. (SC-59)
* High density cell design for extremely low $R_{DS(ON)}$.
* Rugged and reliable.
* High saturation current capability.
* ESD per HBM 2KV

CONSTRUCTION

* N-Channel Enhancement

SC-59/SOT-346

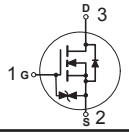




Dimensions in millimeters

SC-59/SOT-346

CIRCUIT



Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Symbol	Parameter	CHM2308ESGP	Units
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	±12	V
I_D	Maximum Drain Current - Continuous	5.4	A
	- Pulsed (Note 3)	22.0	
P_D	Maximum Power Dissipation	1250	mW
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 linited 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)	100	°C/W

RATING CHARACTERISTIC CURVES (CHM2308ESGP)

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 = 250 μA	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 20 V, V_{GS} = 0 V			1	μA
I_{GSSF}	Gate-Body Leakage	V_{GS} = 12V, V_{DS} = 0 V			+10	nA
I_{GSSR}	Gate-Body Leakage	V_{GS} = -12V, V_{DS} = 0 V			-10	nA
ON CHARACTERISTICS (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 μA	0.5		1.2	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=4.5V, I_D=5.4A		21	27	mΩ
		V_{GS}=2.5V, I_D=4.3A		27	36	
g_{FS}	Forward Transconductance	V_{DS} =10V, I_D = 5.4A		17		S
SWITCHING CHARACTERISTICS (Note 4)						
Q_g	Total Gate Charge	V_{DS}=10V, I_D=5.4A V_{GS}=4.5V		4.3	7.5	nC
Q_{gs}	Gate-Source Charge			1.1		
Q_{gd}	Gate-Drain Charge			2.5		
t_{on}	Turn-On Time	V_{DD}= 10V I_D= 1A, V_{GS}= 4.5 V R_{GEN}= 6 Ω		0.35	0.7	uS
t_r	Rise Time			0.87	1.8	
t_{off}	Turn-Off Time			3.6	7.5	
t_f	Fall Time			2.01	4.3	
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I_S	Drain-Source Diode Forward Current	(Note 1)			5.4	A
V_{SD}	Drain-Source Diode Forward Voltage	I_S = 1.0A, V_{GS} = 0 V (Note 2)			1.2	V

RATING CHARACTERISTIC CURVES (CHM2308ESGP)

Typical Electrical Characteristics

Figure 1. Output Characteristics

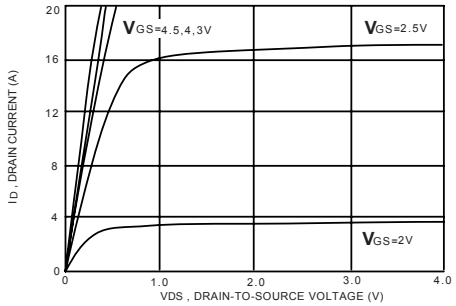


Figure 2. Transfer Characteristics

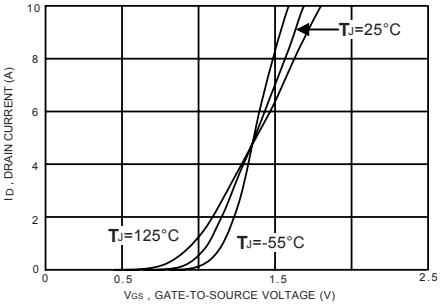


Figure 3. Gate Charge

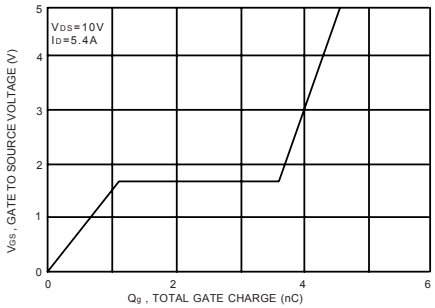


Figure 4. On-Resistance Variation with Temperature

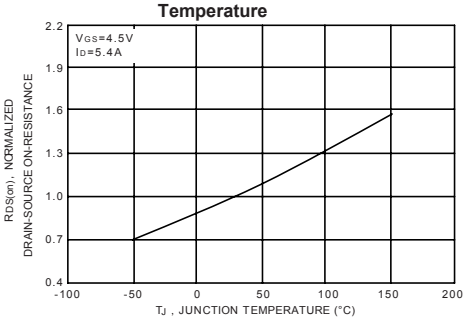


Figure 5. Gate Threshold Variation with Temperature