CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SURFACE MOUNT

N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 30 Volts CURRENT 7 Ampere

CHM2703QGP

APPLICATION

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

FEATURE

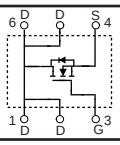
* Small flat package. (SC-74/SOT-457)
* High density cell design for extremely low $R_{DS(ON)}$.
* Rugged and reliable.
* High saturation current capability.

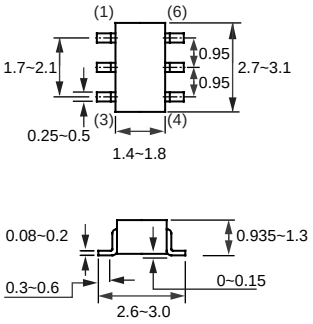
CONSTRUCTION

* N-Channel Enhancement

SC-74/SOT-457

CIRCUIT





Dimensions in millimeters

SC-74/SOT-457

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Symbol	Parameter	CHM2703QGP	Units
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	±20	V
I_D	Maximum Drain Current - Continuous	7	A
	- Pulsed (Note 3)	20	
P_D	Maximum Power Dissipation	1600	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 <=5sec
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)	78	°C/W

ELECTRICAL CHARACTERISTIC (CHM2703QGP)

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	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 24 V, V_{GS} = 0 V			1	µA
I_{GSSF}	Gate-Body Leakage	V_{GS} = 20V, V_{DS} = 0 V			+100	nA
I_{GSSR}	Gate-Body Leakage	V_{GS} = -20V, V_{DS} = 0 V			-100	nA
ON CHARACTERISTICS (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 µA	1		3	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=7.0A		23	27	mΩ
		V_{GS}=4.5V, I_D=5.0A		32	40	
g_{FS}	Forward Transconductance	V_{DS} =5V, I_D = 7.0A		14.4		S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 10V, V_{GS} = 0V, f = 1.0 MHz		680		pF
C_{oss}	Output Capacitance			140		
C_{rss}	Reverse Transfer Capacitance			70		
SWITCHING CHARACTERISTICS (Note 4)						
Q_g	Total Gate Charge	V_{DS}=15V, I_D=75A, V_{GS}=10V		10	15	nC
Q_{gs}	Gate-Source Charge			1.7		
Q_{gd}	Gate-Drain Charge			2.1		
t_{on}	Turn-On Time	V_{DD}= 10V, I_D= 1A, V_{GS}= 10 V, R_{GEN}= 6 Ω		8		nS
t_r	Rise Time			4		
t_{off}	Turn-Off Time			22		
t_f	Fall Time			5		
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I_S	Drain-Source Diode Forward Current	(Note 1)			3.0	A
V_{SD}	Drain-Source Diode Forward Voltage	I_S = 1.0A, V_{GS} = 0 V (Note 2)			1.1	V

RATING CHARACTERISTIC CURVES (CHM2703QGP)

Typical Electrical Characteristics

Figure 1. Output Characteristics

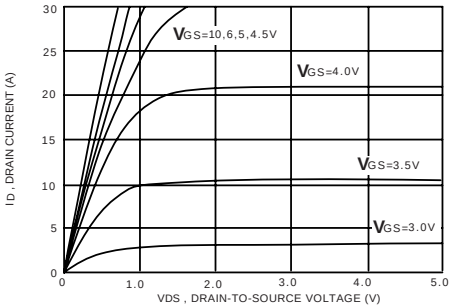


Figure 2. Transfer Characteristics

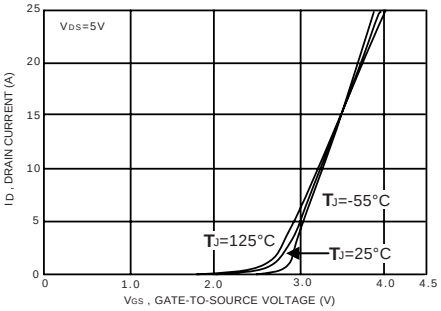


Figure 3. Gate Charge

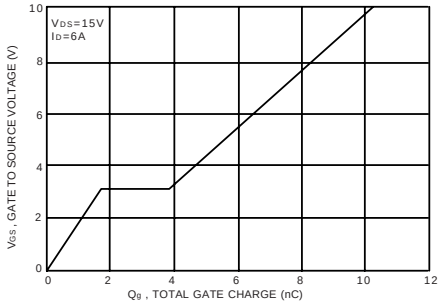


Figure 4. On-Resistance Variation with Temperature