



CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT

N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 20 Volts CURRENT 4.5 Ampere

CHT2312GP

Halogens free devices

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.

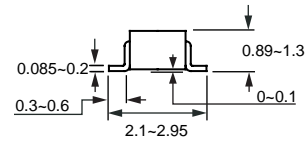
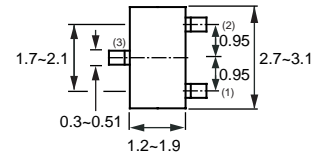
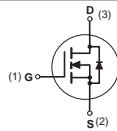
CONSTRUCTION

- * N-Channel Enhancement



SC-59/SOT-346

CIRCUIT



Dimensions in inches and (millimeters)

SC-59/SOT-346

Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	CHT2312GP	Units
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 8	V
I_D	Maximum Drain Current - Continuous	4.5	A
	- Pulsed (Note 3)	13.5	
P_D	Maximum Power Dissipation	1250	mW
T_J	Operating Temperature Range	-55 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$

- Note : 1. Surface Mounted on FR4 Board , $t \leq 10\text{sec}$
 2. Pulse Test , Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$
 3. Repetitive Rating , Pulse width limited by maximum junction temperature
 4. Guaranteed by design , not subject to production testing

Thermal characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1)	100	$^\circ\text{C/W}$
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RATING CHARACTERISTIC CURVES (CHT2312GP)

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 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} = 8V, V _{DS} = 0 V			+100	nA
I _{GSSR}	Gate-Body Leakage	V _{GS} = -8V, V _{DS} = 0 V			-100	nA

ON CHARACTERISTICS (Note 2)

V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 50 μA	0.5		1	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =4.5V, I _D =5.0A		27	33	m Ω
		V _{GS} =2.5V, I _D =4.5A		33	40	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D = 5.0A		10		S

SWITCHING CHARACTERISTICS (Note 4)

Q _g	Total Gate Charge	V _{DS} =10V, I _D =5.0A V _{GS} =4.5V		10	15	nC
Q _{gs}	Gate-Source Charge		2.3			
Q _{gd}	Gate-Drain Charge		2.9			
t _{on}	Turn-On Time	V _{DD} = 10V I _D = 1.0A, V _{GS} = 4.5 V R _{GEN} = 6 Ω		20	40	nS
t _r	Rise Time		18	40		
t _{off}	Turn-Off Time		60	108		
t _f	Fall Time		28	56		

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I _S	Drain-Source Diode Forward Current	(Note 1)			1.7	A
V _{SD}	Drain-Source Diode Forward Voltage	I _S = 1.0A, V _{GS} = 0 V (Note 2)			1.2	V

RATING CHARACTERISTIC CURVES (CHT2312GP)

Typical Electrical Characteristics

Figure 1. Output Characteristics

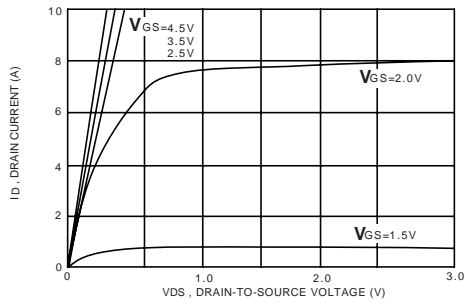


Figure 2. Transfer Characteristics

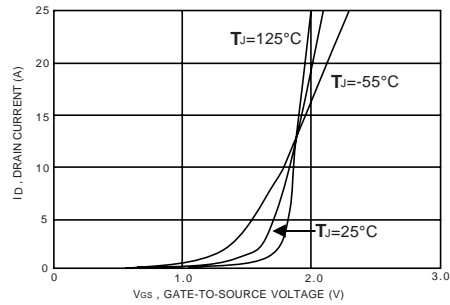


Figure 3. Gate Charge

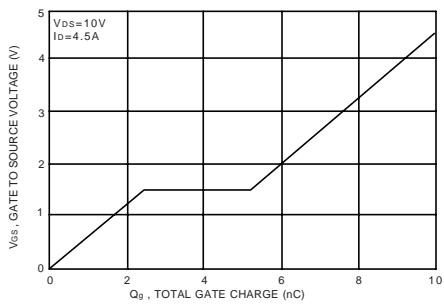


Figure 4. On-Resistance Variation with Temperature

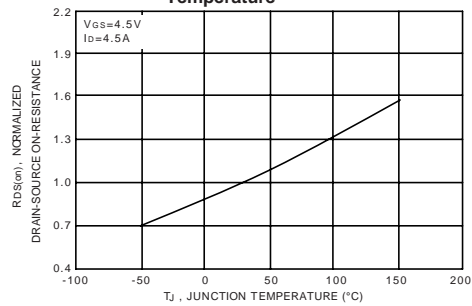


Figure 5. Gate Threshold Variation with Temperature

