CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

CHT2302GP

SURFACE MOUNT
N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 20 Volts CURRENT 2.8 Ampere

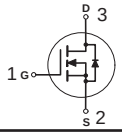
APPLICATION
* Servo motor control.
* Power MOSFET gate drivers.
* Other switching applications.

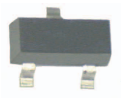
FEATURE
* Small surface mounting type. (SOT-23)
* High density cell design for low $R_{DS(ON)}$.
* Suitable for high packing density.
* Rugged and reliable.
* High saturation current capability.
* Voltage controlled small signal switch.

CONSTRUCTION
* N-Channel Enhancement

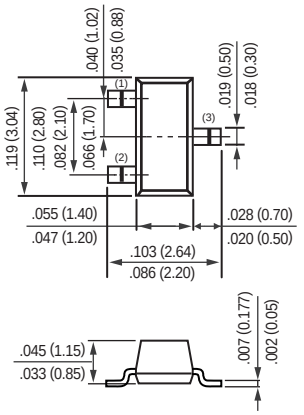
MARKING
* 02

CIRCUIT





SOT-23



Dimensions in millimeters

SOT-23

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Symbol	Parameter	CHT2302GP	Units
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	±8	V
I_D	Maximum Drain Current - Continuous (Note 1)	2.8	A
	- Pulsed (Note 2)	10	
I_S	Drain-Source Diose Forward Current (Note 1)	1.6	A
P_D	Maximum Power Dissipation (Note 1)	1250	mW
T_J,T_{STG}	Operating and 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%

Thermal characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	85	°C/W

2004-8

RATING CHARACTERISTIC CURVES (CHT2302GP)

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} = 16 V, V_{GS} = 0 V			1	µA
I_{GSS}	Gate-Body Leakage	V_{GS} = 8 V, V_{DS} = 0 V			+100	nA
I_{GSS}	Gate-Body Leakage	V_{GS} = -8 V, V_{DS} = 0 V			-100	nA
ON CHARACTERISTICS (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 µA	0.7		1.2	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=4.5V, I_D=3.6A			85	mΩ
		V_{GS}=2.5V, I_D=3.1A			115	
V_{SD}	Diose Forward Voltage	V_{DS} = 0V, I_S = 1.0 A			1.0	V
SWITCHING CHARACTERISTICS (Note 3)						
Q_g	Total Gate Charge	V_{DS}=10V, I_D=1A V_{GS}=4.5V		6.52		nC
Q_{gs}	Gate-Source Charge			1.6		
Q_{gd}	Gate-Drain Charge			1.16		
t_{on}	Turn-On Time	V_{DD}= 10V I_D= 1.0A, V_{GEN}= 4.5 V R_L= 10Ω , R_{GEN}= 10Ω		12		nS
t_r	Rise Time			36		
t_{off}	Turn-Off Time			34		
t_f	Fall Time			10		

Note : 3. Guaranteed by design , not subject to production trsting

RATING CHARACTERISTIC CURVES (CHT2302GP)

Typical Electrical Characteristics

Figure 1. Output Characteristics

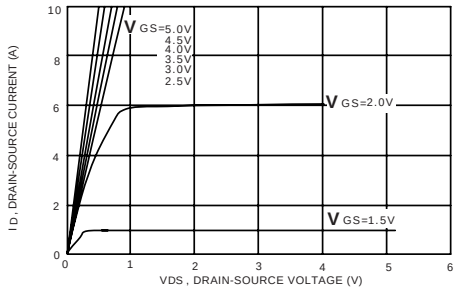


Figure 2. Transfer Characteristics

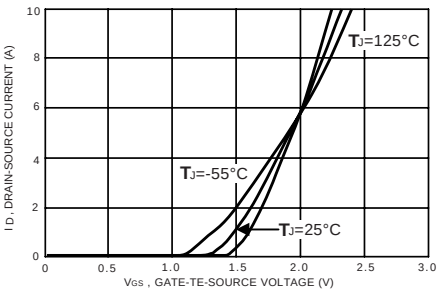


Figure 3. Breakdown Voltage Variation with Temperature

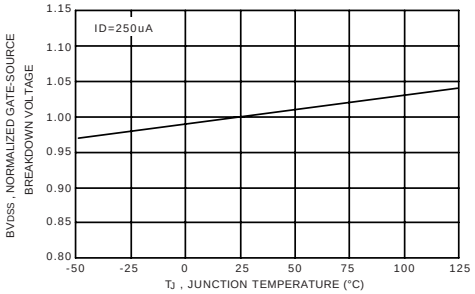


Figure 4. On-Resistance Variation with Temperature

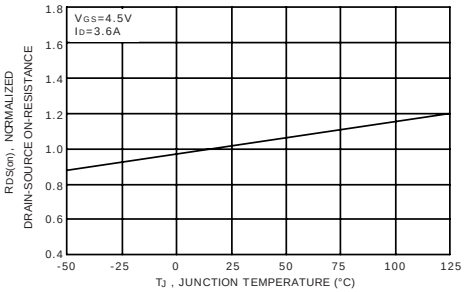


Figure 5. Gate Threshold Variation with Temperature

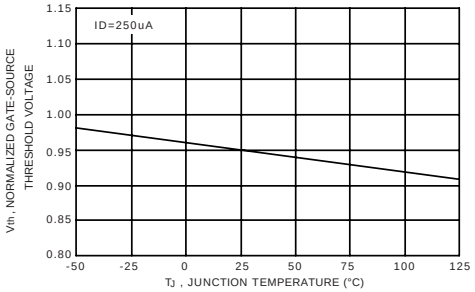


Figure 6. Gate Charge