



CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SURFACE MOUNT

P-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 20 Volts CURRENT 2.8 Ampere

CHM2301ESGP

APPLICATION

- * Portable
- * High speed switch

FEATURE

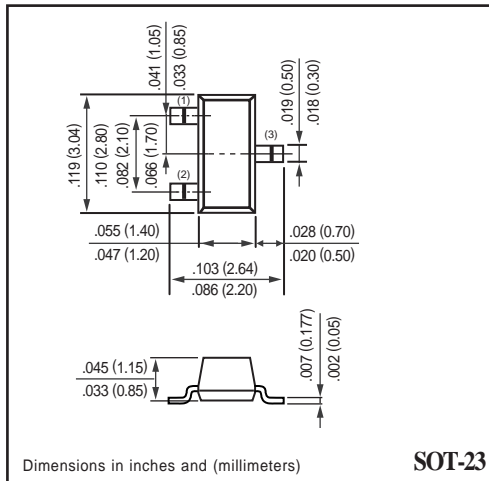
- * Small surface mounting type. (SOT-23)
- * High density cell design for low Rds(ON)
- * Suitable for high packing density.
- * Rugged and reliable.
- * High saturation current capability.
- * Voltage controlled small signal switch.

CONSTRUCTION

- * P-Channel Enhancement



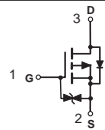
SOT-23



Dimensions in inches and (millimeters)

SOT-23

CIRCUIT



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

Symbol	Parameter	CHM2301ESGP	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate-Source Voltage	± 12	V
I_D	Maximum Drain Current - Continuous (Note 1)	-2.8	A
	- Pulsed (Note 2)	-12	
I_S	Drain-Source Diode Forward Current (Note 1)	-1.3	A
P_D	Maximum Power Dissipation (Note 1)	830	mW
T_J, T_{STG}	Operating and 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 $\leq 2\%$

Thermal characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	150	$^\circ\text{C/W}$
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RATING CHARACTERISTIC (CHM2301ESGP)

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	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-20			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
I_{GSS}	Gate-Body Leakage	$V_{GS} = 10\text{ V}, V_{DS} = 0\text{ V}$			+100	nA
I_{GSS}	Gate-Body Leakage	$V_{GS} = -10\text{ V}, V_{DS} = 0\text{ V}$			-100	nA

ON CHARACTERISTICS (Note 2)

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.5		-1.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = -4.5\text{ V}, I_D = -2.8\text{ A}$		55	70	m Ω
		$V_{GS} = -2.5\text{ V}, I_D = -2.0\text{ A}$		80	110	
V_{SD}	Diode Forward Voltage	$V_{DS} = 0\text{ V}, I_S = -1.0\text{ A}$			1.1	V

SWITCHING CHARACTERISTICS (Note 3)

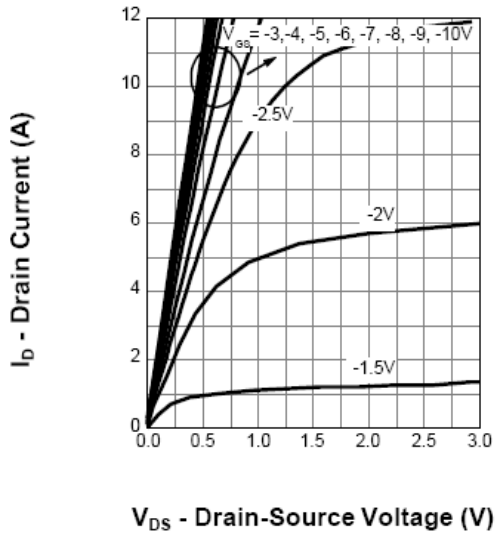
Q_g	Total Gate Charge	$V_{DS} = -10\text{ V}, I_D = -2.8\text{ A}$ $V_{GS} = -4.5\text{ V}$		6.2	9	nC
Q_{gs}	Gate-Source Charge			1.3		
Q_{gd}	Gate-Drain Charge			1.2		
t_{on}	Turn-On Time	$V_{DD} = -10\text{ V}$ $I_D = -1.0\text{ A}, V_{GEN} = -4.5\text{ V}$ $R_L = 10\ \Omega, R_{GEN} = 6\ \Omega$		5		nS
t_r	Rise Time			12		
t_{off}	Turn-Off Time			30		
t_f	Fall Time			22		

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

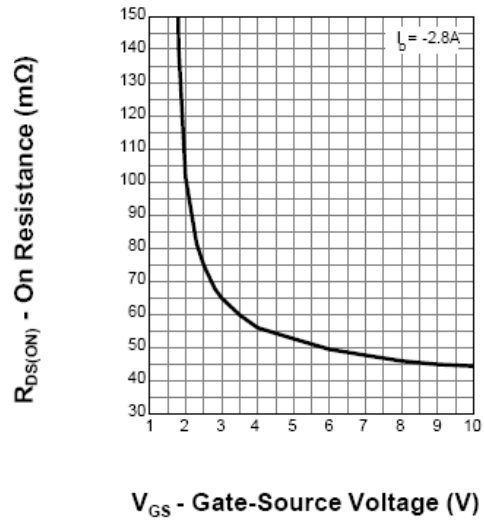
RATING CHARACTERISTIC CURVES (CHM2301ESGP)

Typical Electrical Characteristics

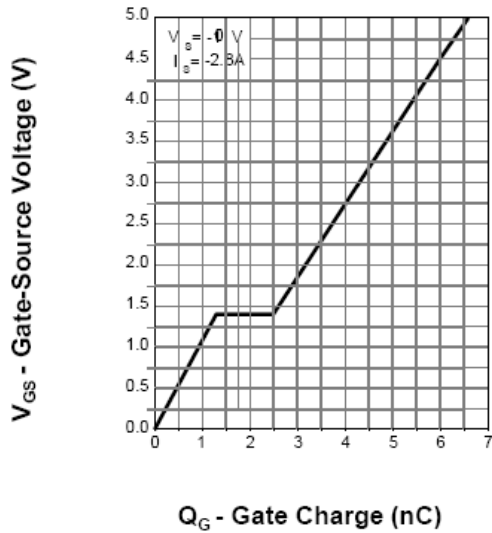
Output Characteristics



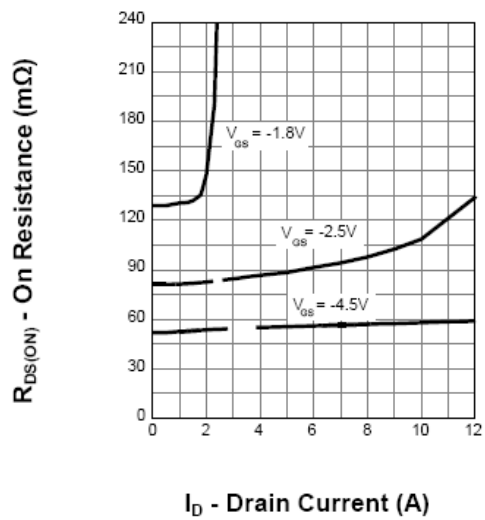
Transfer Characteristics



Gate Charge

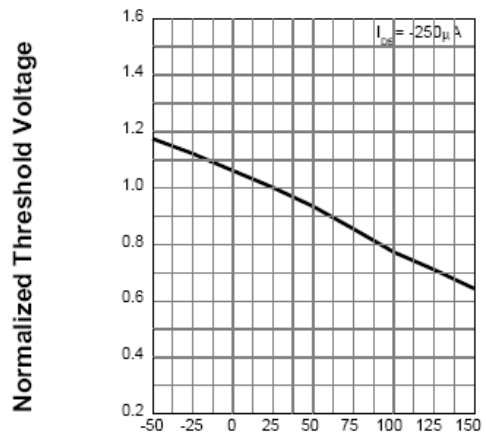


Drain-Source On Resistance



RATING CHARACTERISTIC CURVES (CHM2301ESGP)

Gate Threshold Voltage



T_j - Junction Temperature (°C)