



CHENMKO ENTERPRISE CO.,LTD

CHM2331GP

SURFACE MOUNT

P-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 20 Volts CURRENT 4.2 Ampere

Halogens free devices

APPLICATION

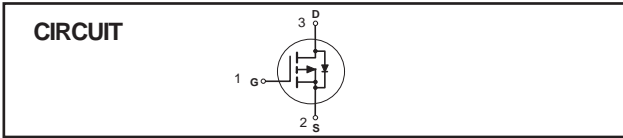
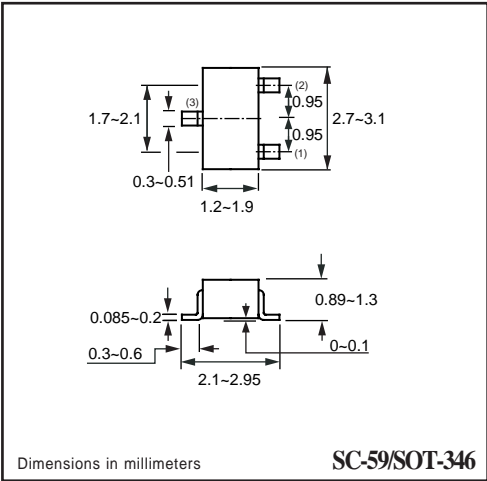
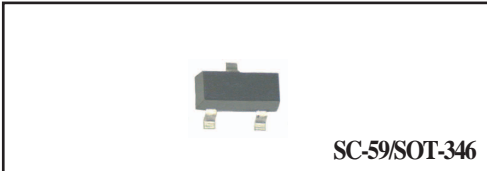
- * Servo motor control.
- * Power MOSFET gate drivers.
- * Other switching applications.

FEATURE

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

CONSTRUCTION

- * P-Channel Enhancement



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

Symbol	Parameter	CHM2331GP	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate-Source Voltage	± 8	V
I_D	Maximum Drain Current - Continuous	-4.2	A
	- Pulsed (Note 3)	-15	
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 (CHM2331GP)

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	$V_{DS} = -20\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
I_{GSSF}	Gate-Body Leakage	$V_{GS} = 8\text{ V}, V_{DS} = 0\text{ V}$			+100	nA
I_{GSSR}	Gate-Body Leakage	$V_{GS} = -8\text{ V}, V_{DS} = 0\text{ V}$			-100	nA

ON CHARACTERISTICS (Note 2)

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.4		-0.9	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS} = -4.5\text{ V}, I_D = -3.3\text{ A}$		38	48	m Ω
		$V_{GS} = -2.5\text{ V}, I_D = -2.8\text{ A}$		50	65	
		$V_{GS} = -1.8\text{ V}, I_D = -2.0\text{ A}$		70	95	

Dynamic Characteristics

C_{ISS}	Input Capacitance	$V_{DS} = -10\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$		1170		pF
C_{OSS}	Output Capacitance			220		
C_{RSS}	Reverse Transfer Capacitance			135		

SWITCHING CHARACTERISTICS (Note 4)

Q_g	Total Gate Charge	$V_{DS} = -10\text{ V}, I_D = -4\text{ A}$ $V_{GS} = -4.5\text{ V}$		10	13	nC
Q_{gs}	Gate-Source Charge			1.3		
Q_{gd}	Gate-Drain Charge			2.8		
t_{on}	Turn-On Time	$V_{DD} = -10\text{ V}$ $I_D = -4\text{ A}, V_{GS} = -4.5\text{ V}$ $R_{GEN} = 3\ \Omega$		14	30	nS
t_r	Rise Time			9	20	
t_{off}	Turn-Off Time			74	150	
t_f	Fall Time			35	70	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I_S	Drain-Source Diode Forward Current	(Note 1)			-4.2	A
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = -1.6\text{ A}, V_{GS} = 0\text{ V}$ (Note 2)			-1.2	V

RATING CHARACTERISTIC CURVES (CHM2331GP)

Typical Electrical Characteristics

Figure 1. Output Characteristics

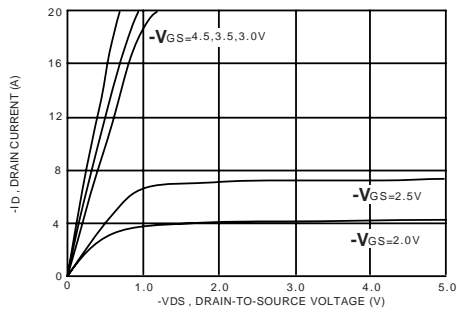


Figure 2. Transfer Characteristics

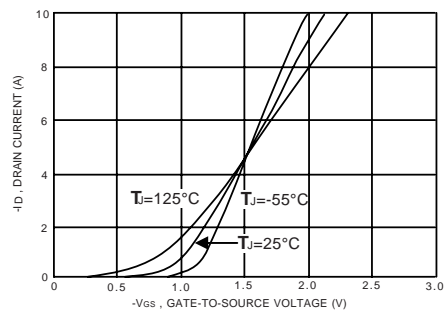


Figure 3. Gate Charge

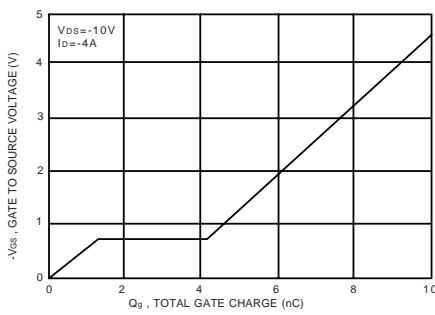


Figure 4. On-Resistance Variation with Temperature

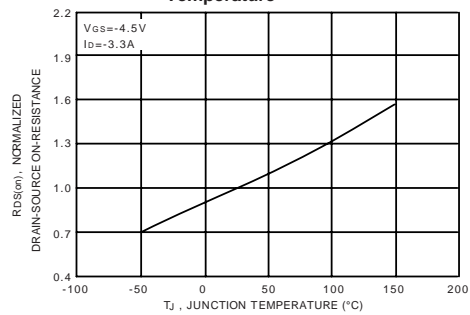


Figure 5. Gate Threshold Variation with Temperature

