



CHENMKO ENTERPRISE CO.,LTD

CHM310PT

SURFACE MOUNT

N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 100 Volts CURRENT 170 mAmpere

Lead free devices

APPLICATION

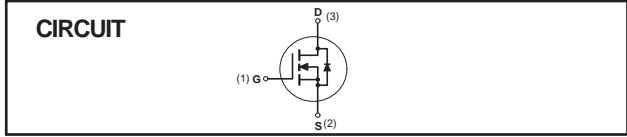
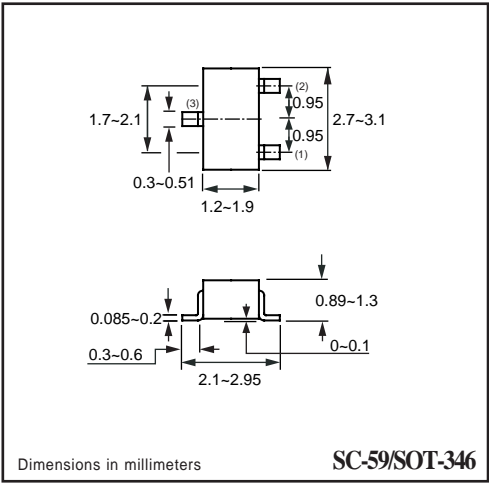
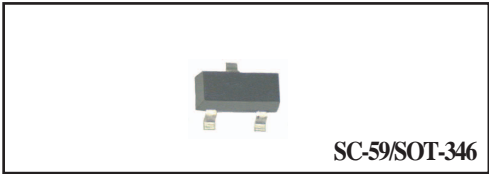
- * Servo motor control.
- * Other switching applications.

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



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

Symbol	Parameter	CHM310PT	Units
V_{DSS}	Drain-Source Voltage	100	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Maximum Drain Current - Continuous	170	mA
	- Pulsed (Note 1)	680	
P_D	Maximum Power Dissipation (Note 1)	300	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. Part mounted on FR-4 board with recommended pad layout.
 2. Short duration test pulse used to minimize self-heating effect

Thermal characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1)	417	$^\circ\text{C/W}$
-----------------	--	-----	--------------------

RATING CHARACTERISTIC CURVES (CHM310PT)

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
--------	-----------	------------	-----	-----	-----	-------

OFF CHARACTERISTICS

BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 10\ \mu\text{A}$	100			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$			100	nA
I_{GSSF}	Gate-Body Leakage	$V_{GS} = 20\text{ V}, V_{DS} = 0\text{ V}$			+50	nA
I_{GSSR}	Gate-Body Leakage	$V_{GS} = -20\text{ V}, V_{DS} = 0\text{ V}$			-50	nA

ON CHARACTERISTICS (Note 2)

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 1\text{ mA}$	0.8		2.8	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5\text{V}, I_D=170\text{mA}$		5	9	Ω
		$V_{GS}=10\text{V}, I_D=170\text{mA}$		4.5	6	
g_{FS}	Forward Transconductance	$V_{DS} = 10\text{V}, I_D = 4.0\text{A}$	80			mS

SWITCHING CHARACTERISTICS

Q_g	Total Gate Charge	$V_{DS}=10\text{V}, I_D=0.22\text{A}$ $V_{GS}=10\text{V}$		1.4	2	nC
Q_{gs}	Gate-Source Charge			0.15		
Q_{gd}	Gate-Drain Charge			0.2		
t_{on}	Turn-On Time	$V_{DD}= 30\text{V}$ $I_D = 0.28\text{A}, V_{GS} = 10\text{ V}$ $R_{GEN} = 50\ \Omega$			8	nS
t_r	Rise Time				8	
t_{off}	Turn-Off Time				13	
t_f	Fall Time				16	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS

I_S	Drain-Source Diode Forward Current				115	mA
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = 115\text{mA}, V_{GS} = 0\text{ V}$			1.4	V

RATING CHARACTERISTIC CURVES (CHM310PT)

Typical Electrical Characteristics

Figure 1. Output Characteristics

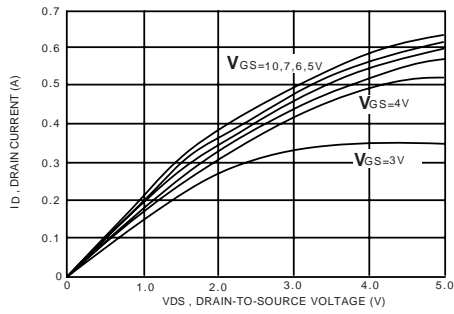


Figure 2. I_D vs $R_{DS(ON)}$ Characteristics

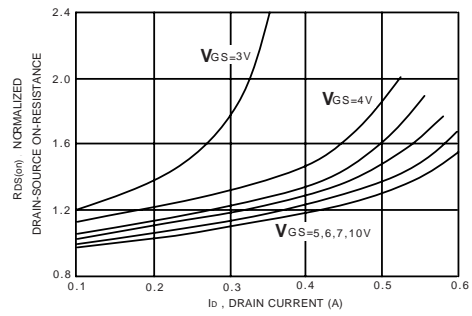


Figure 3. Gate Threshold Variation with Temperature

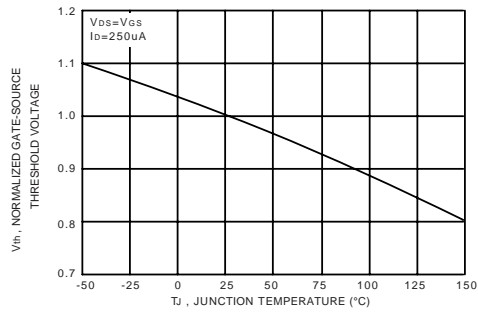


Figure 4. On-Resistance Variation with Temperature

