



**CHENMKO ENTERPRISE CO.,LTD**

Halogens free devices

**SURFACE MOUNT**

**N-Channel Enhancement Mode Field Effect Transistor**

VOLTAGE 20 Volts CURRENT 0.65 Ampere

**CHM1012TGP**

**APPLICATION**

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

**FEATURE**

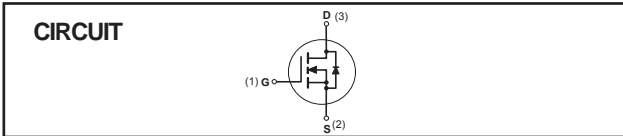
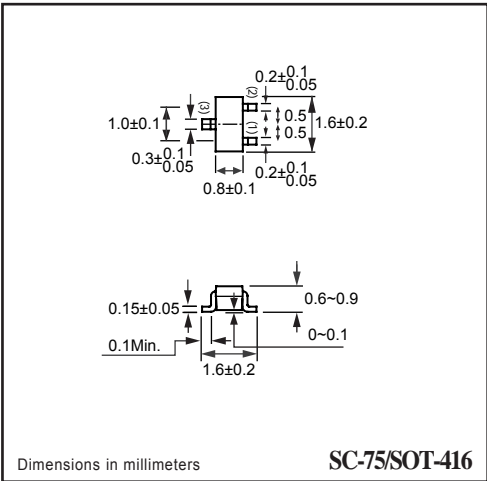
- \* Small surface mounting type. (SC-75/SOT-416)
- \* High density cell design for low  $R_{DS(ON)}$ .
- \* Suitable for high packing density.
- \* Rugged and reliable.
- \* High saturation current capability.
- \* Voltage controlled small signal switch.

**MARKING**

- \* X

**CONSTRUCTION**

- \* N-Channel Enhancement



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

Symbol	Parameter	CHM1012TGP	Units
$V_{DSS}$	Drain-Source Voltage	20	V
$V_{GSS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Maximum Drain Current - Continuous (Note 1)	0.65	A
	- Pulsed (Note 2)	1.0	
$I_S$	Drain-Source Diode Forward Current (Note 1)	0.3	A
$P_D$	Maximum Power Dissipation (Note 1)	270	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	480	$^\circ\text{C/W}$
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## RATING CHARACTERISTIC CURVES ( CHM1012TGP )

**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	$\mu\text{A}$
$I_{GSS}$	Gate-Body Leakage	$V_{GS} = 12\text{ V}, V_{DS} = 0\text{ V}$			+100	nA
$I_{GSS}$	Gate-Body Leakage	$V_{GS} = -12\text{ V}, V_{DS} = 0\text{ V}$			-100	nA

### ON CHARACTERISTICS (Note 2)

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	0.35		1	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5\text{V}, I_D=0.65\text{A}$		0.26	0.38	$\Omega$
		$V_{GS}=2.5\text{V}, I_D=0.55\text{A}$		0.32	0.45	
		$V_{GS}=1.8\text{V}, I_D=0.45\text{A}$		0.42	0.80	
$V_{SD}$	Diode Forward Voltage	$V_{DS} = 0\text{ V}, I_S = 0.15\text{ A}$		0.8	1.2	V

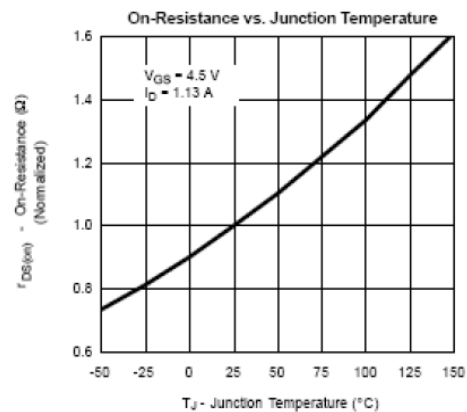
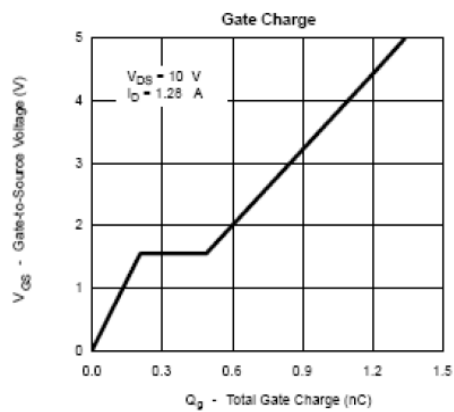
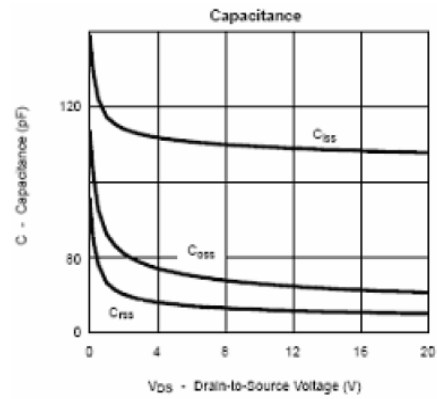
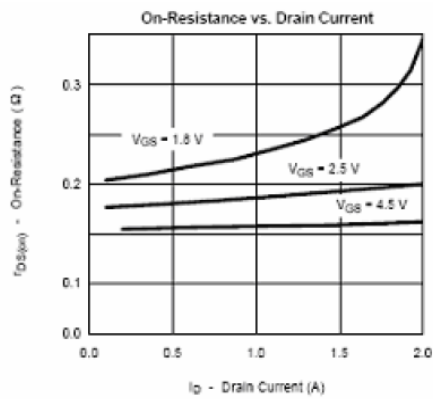
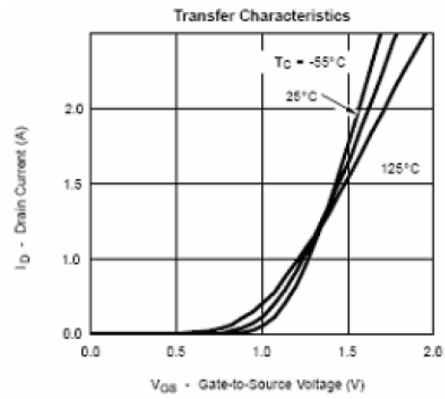
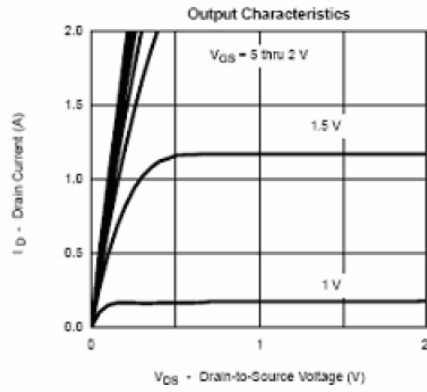
### SWITCHING CHARACTERISTICS (Note 3)

$Q_g$	Total Gate Charge	$V_{DS}=10\text{V}, I_D=0.6\text{A}$ $V_{GS}=4.5\text{V}$		1.2	1.5	nC
$Q_{gs}$	Gate-Source Charge			0.2		
$Q_{gd}$	Gate-Drain Charge			0.3		
$t_{on}$	Turn-On Time	$V_{DD}= 10\text{V}$ $I_D = 0.5\text{A}, V_{GEN}=4.5\text{ V}$ $R_L= 10\ \Omega, R_{GEN}= 6\ \Omega$		5	10	nS
$t_r$	Rise Time			8	15	
$t_{off}$	Turn-Off Time			10	18	
$t_f$	Fall Time			1.2	2.8	

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

## RATING CHARACTERISTIC CURVES ( CHM1012TGP )

### Typical Electrical Characteristics



## RATING CHARACTERISTIC CURVES ( CHM1012TGP )

