



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Micro Commercial Components



Micro Commercial Components  
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# SI1012

## Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Low Threshold
- ESD Protected Gate
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

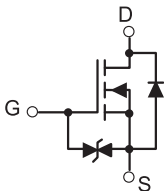
## Maximum Ratings

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C

Parameter	Symbol	Value	Unit
Drain-Source-Voltage	$V_{DSS}$	20	V
Gate-Source-Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current	$I_{D(DC)}$	0.5	A
Pulsed Drain Current (note1)	$I_{DM(pulse)}$	1.0	A
Thermal Resistance	$R_{thJA}$ $R_{thJC}$	833 455	$^{\circ}C/W$
Power Dissipation (note2, $T_a=25^{\circ}C$ )	$P_D$	150	mW
Maximum Power Dissipation (note3, $T_c=25^{\circ}C$ )		275	mW

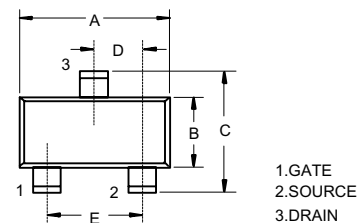
Equivalent circuit

Marking: C

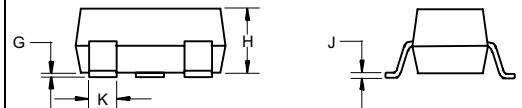


## N-Channel Plastic-Encapsulate Transistor

## SOT-523



1.GATE  
2.SOURCE  
3.DRAIN



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.059	.067	1.50	1.70	
B	.030	.033	0.75	0.85	
C	.057	.069	1.45	1.75	
D	.020 Nominal		0.50Nominal		
E	.035	.043	0.90	1.10	
G	.000	.004	.000	.100	
H	.028	.031	.70	0.80	
J	.004	.008	.100	.200	
K	.010	.014	.25	.35	

# SI1012

## MOSFET ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

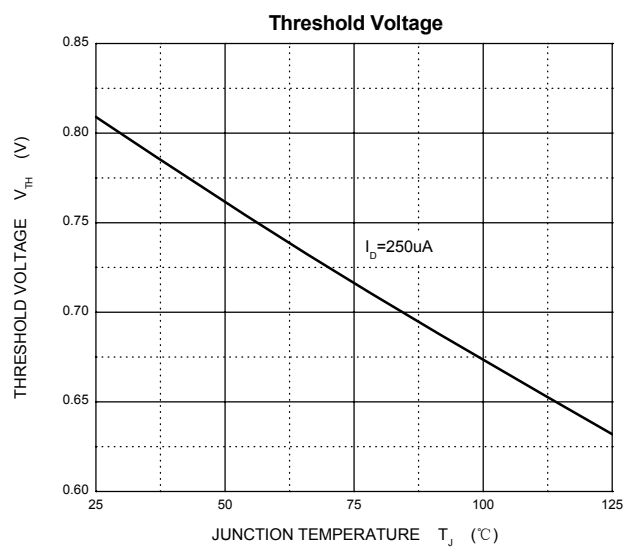
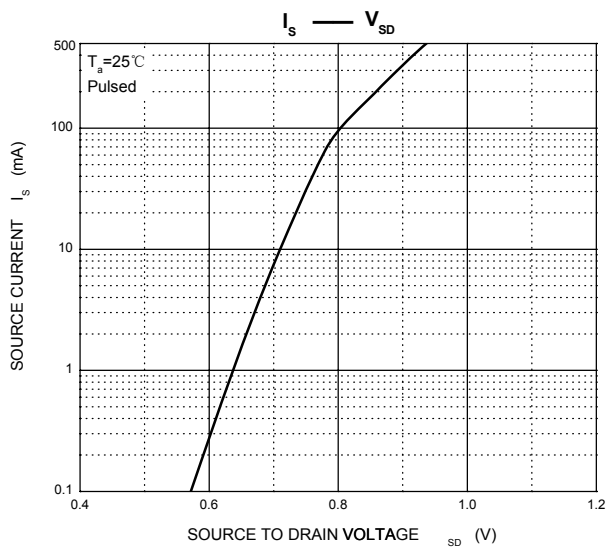
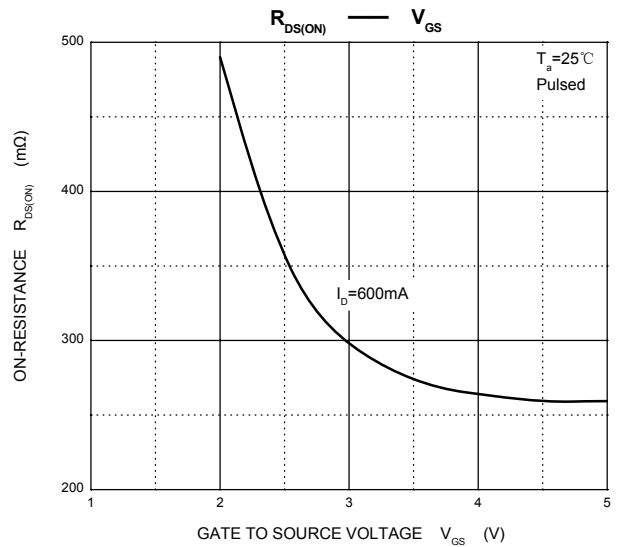
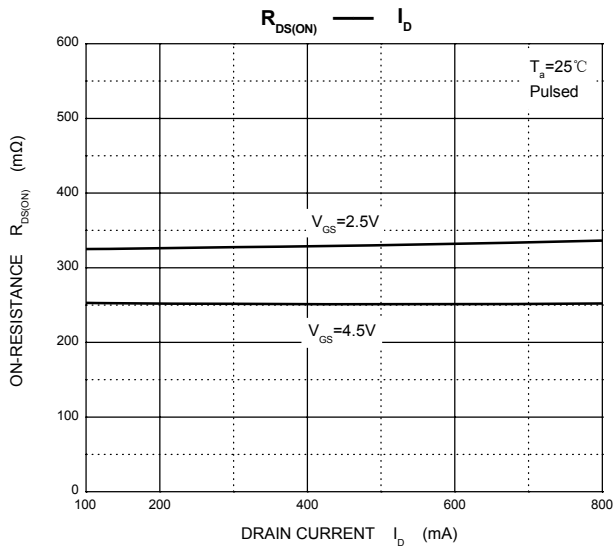
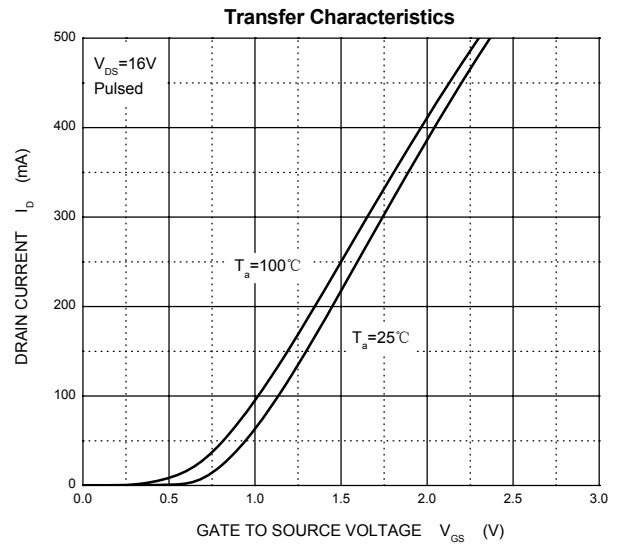
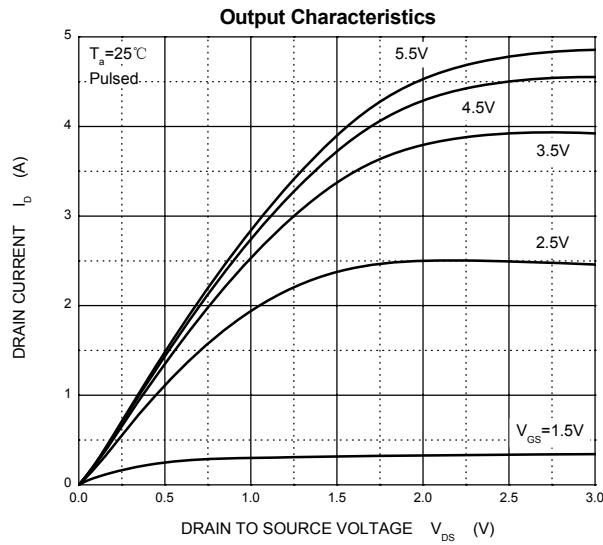
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>On/Off States</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45	0.8	1.2	
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 4.5V$			$\pm 1$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 16V, V_{GS} = 0V$			100	nA
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 600mA$		250	700	m $\Omega$
		$V_{GS} = 2.5V, I_D = 500mA$		330	850	
Forward Transconductance	$g_{FS}$	$V_{DS} = 10V, I_D = 400mA$		1		S
<b>Dynamic Characteristics</b>						
Input Capacitance (note 4)	$C_{iss}$	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$		100		pF
Output Capacitance (note 4)	$C_{oss}$			16		
Reverse Transfer Capacitance (note 4)	$C_{rss}$			12		
Total Gate Charge	$Q_g$	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 250mA$		750		nC
Gate-Source Charge	$Q_{gs}$			75		
Gate-Drain Charge	$Q_{gd}$			225		
<b>Switching Times (note 4)</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V, R_L = 47\Omega, I_D = 200mA, V_{GS} = 4.5V, R_G = 10\Omega$		5		nS
Rise Time	$t_r$			5		
Turn-Off Delay Time	$t_{d(off)}$			25		
Fall Time	$t_f$			11		
<b>Drain-Source Diode Characteristics</b>						
Drain-Source Diode Forward Voltage (note 5)	$V_{SD}$	$I_S = 0.15A, V_{GS} = 0V$			1.2	V

### Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at  $T_a = 25^\circ C$ .
3. This test is performed with infinite heat sink at  $T_c = 25^\circ C$ .
4. These parameters have no way to verify.
5. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 0.5\%$ .



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Micro Commercial Components

Ordering Information :

Device	Packing
(Part Number)-TP	Tape&Reel:3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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