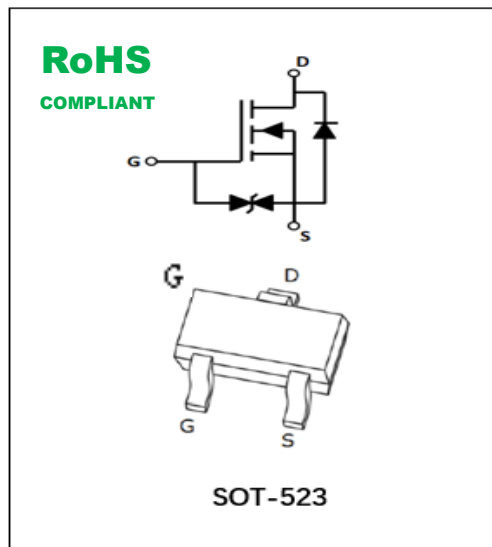


**FEATURE**

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level1
- High density cell design for low $R_{DS(ON)}$
- High-Side Switching
- ESD Protect 2kv
- Rugged and reliable

APPLICATION

- Drivers: Relays, Solenoid, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

**■ MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**

Symbol	Parameter	Value	Unit
V_{DS}	Drain-source Voltage	20	V
V_{GS}	Gate-source Voltage	± 12	V
I_D	Continuous Drain Current	500	mA
I_{DM}	Pulsed Drain Current ^A	1000	mA
P_D	Power Dissipation with no heat sink @ $T_A=25^{\circ}\text{C}$	150	mW
	Maximum Power Dissipation with infinite heat sink @ $T_C=25^{\circ}\text{C}$	275	mW
R_{thJA}	Thermal Resistance From Junction To Ambient	833	$^{\circ}\text{C}/\text{W}$
T_J	Operation Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
LM1012	F1	C	3000	30000	120000	7" reel

**ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)**

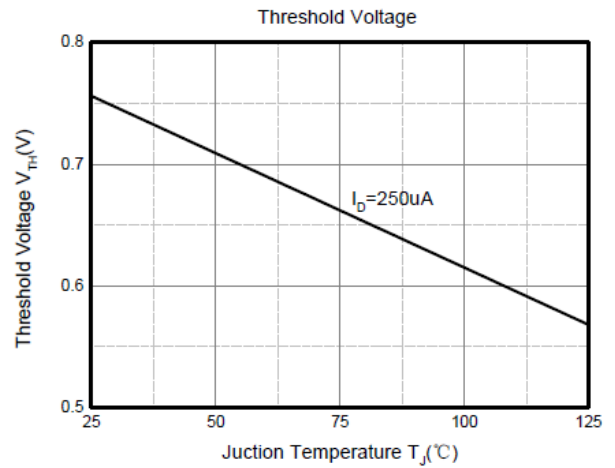
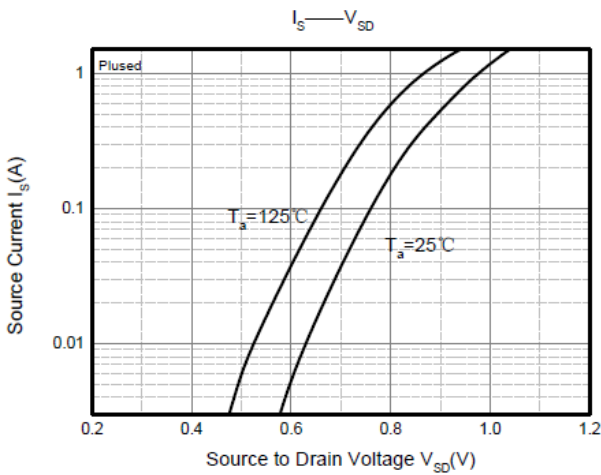
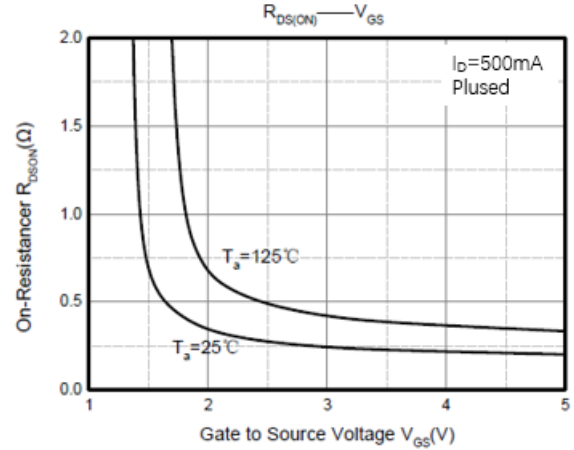
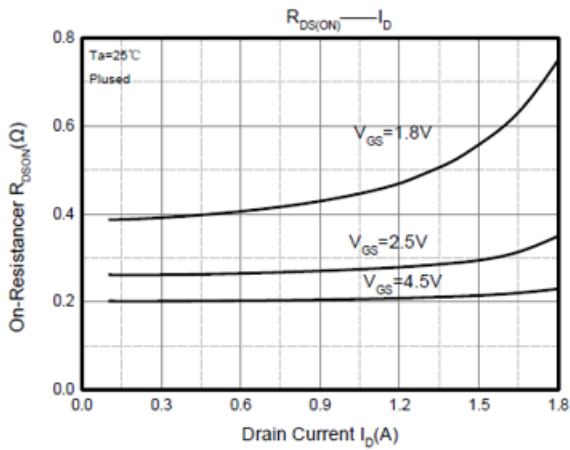
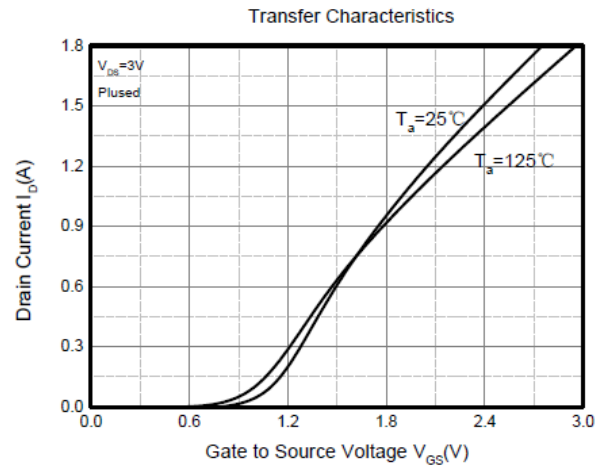
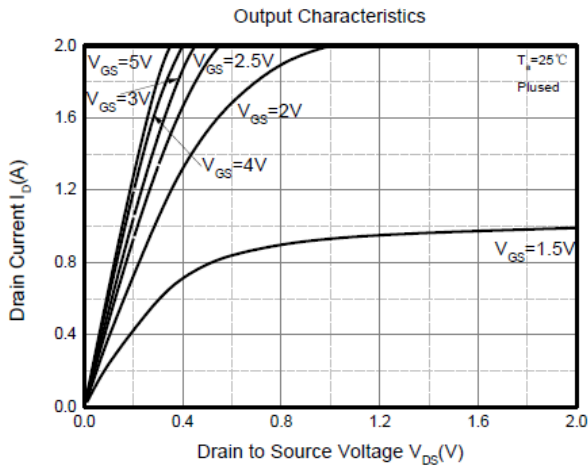
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS1}	V _{GS} = ±4.5V, V _{DS} =0V			±1	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	0.45	0.75	1.2	V
Drain-source on-resistance	R _{DS(ON)}	V _{GS} = 4.5V, I _D =500mA		190	380	mΩ
		V _{GS} = 2.5V, I _D =400mA		260	450	
Dynamic characteristics ^B						
Input Capacitance	C _{iss}	V _{DS} =16V, V _{GS} =0V, f=1MHZ		60		pF
Output Capacitance	C _{oss}			12		
Reverse Transfer Capacitance	C _{rss}			8		
Switching Characteristics ^B						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V, V _{DD} =10V, R _G =10Ω, I _D =50 0mA		6.7		ns
Turn-on rise time	t _r			4.8		
Turn-off delay time	t _{d(off)}			17.3		
Turn-off fall time	t _f			7.4		
Source-Drain Diode characteristics						
Diode Forward voltage ^C	V _{DS}	V _{GS} =0V, I _S =150mA			1.2	V

Notes:

- A. Repetitive Rating: Pulse width limited by maximum junction temperature.
 B. These parameters have no way to verify.
 C. Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 0.5%.

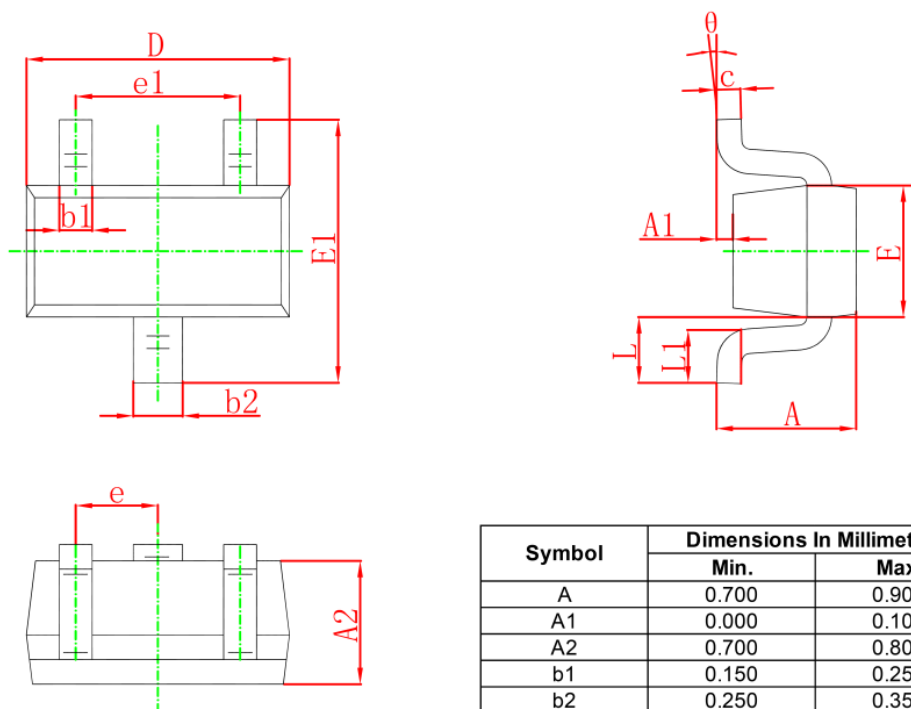


■ Characteristics(Typical)





■SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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