

SI1012L

S-SI1012L

N-Channel 1.8-V (G-S) MOSFET

1. FEATURES

- Power MOSFET: 1.8-V Rated
- Gate-Source ESD Protected
- High-Side Switching
- Low On-Resistance: 0.7Ω
- Low Threshold: 0.8 V (typ)
- Fast Switching Speed: 10 ns
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. BENEFITS

- Ease in Driving Switches
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation

3. APPLICATIONS

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

4. DEVICE MARKING AND ORDERING INFORMATION

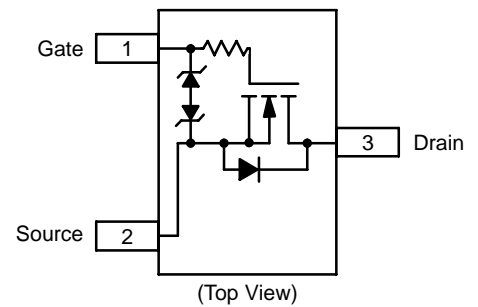
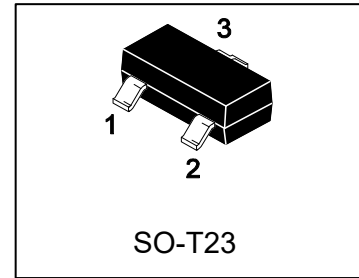
Device	Marking	Shipping
SI1012L	A2	3000/Tape&Reel

5. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	5 secs	Steady State	Unit
Drain-Source Voltage	VDS	20		V
Gate-Source Voltage	VGS	±6		V
Continuous Drain Current (TJ = 150°C) (Note 2)	ID	TA = 25°C	500	mA
		TA = 85°C	350	
Pulsed Drain Current(Note 1)	IDM	1000		
Continuous Source Current (diode conduction)(Note 2)	IS	275	250	
Maximum Power Dissipation	PD	225		mW
Operating Junction and Storage Temperature Range	TJ , Tstg	-55 ~+150		°C

1.Pulse width limited by maximum junction temperature.

2.Surface Mounted on FR4 Board.



6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage (VGS = 0V, ID = 250μA)	V(BR)DSS	20	-	-	V
Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	0.45	-	0.9	V
Gate-Body Leakage (VDS = 0 V, VGS = ±4.5 V)	IGSS	-	±0.5	±1	μA
Zero Gate Voltage Drain Current (VDS = 20 V, VGS = 0 V) (VDS = 20 V, VGS = 0 V, TJ = 85°C)	IDSS	-	0.3	100	nA μA
Drain-Source On-State Resistance(Note 1) (VGS = 4.5 V, ID = 600 mA) (VGS = 2.5 V, ID = 500 mA) (VGS = 1.8 V, ID = 350 mA)	RDS(on)	-	0.41 0.53 0.7	0.7 0.85 1.25	Ω
Diode Forward Voltage(Note 1) (IS = 150 mA, VGS = 0 V)	VSD	-	0.8	1.2	V

Dynamic(Note 2)

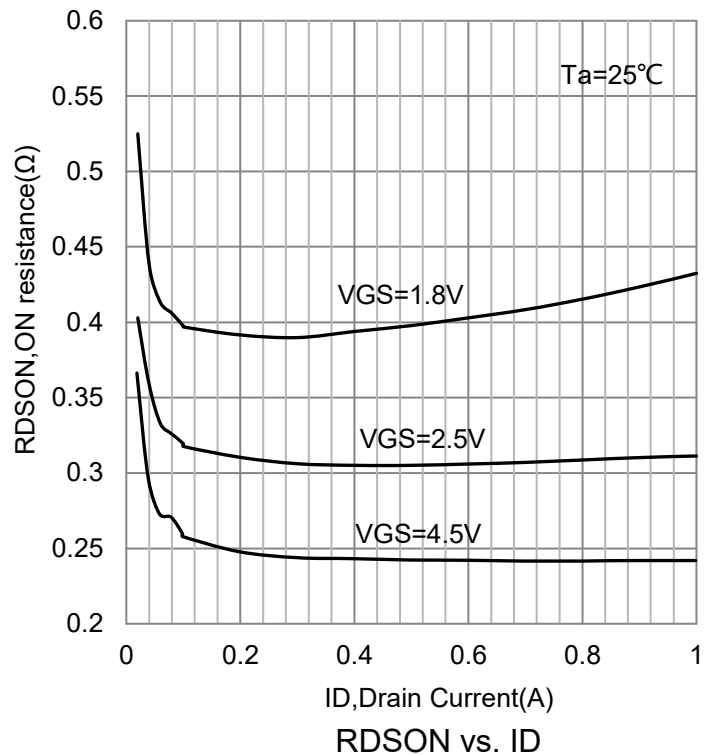
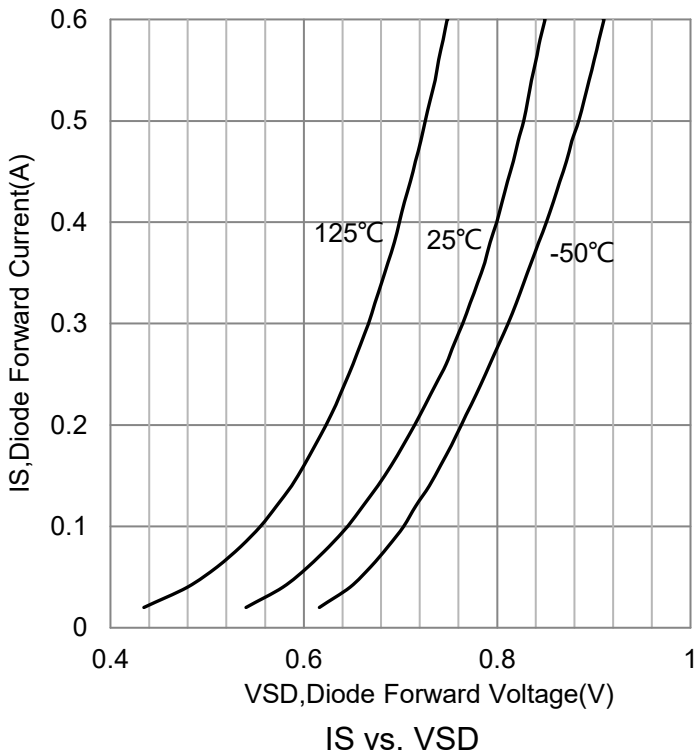
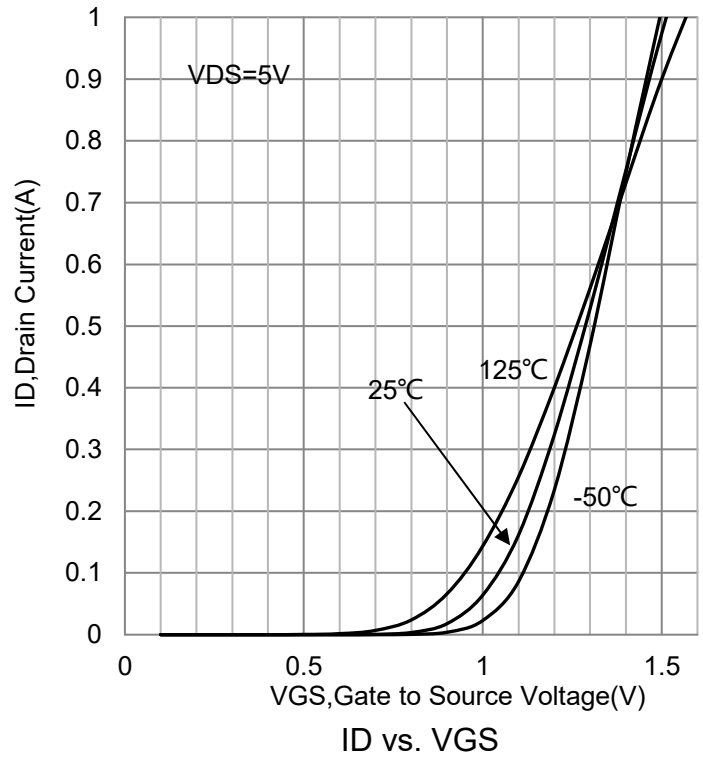
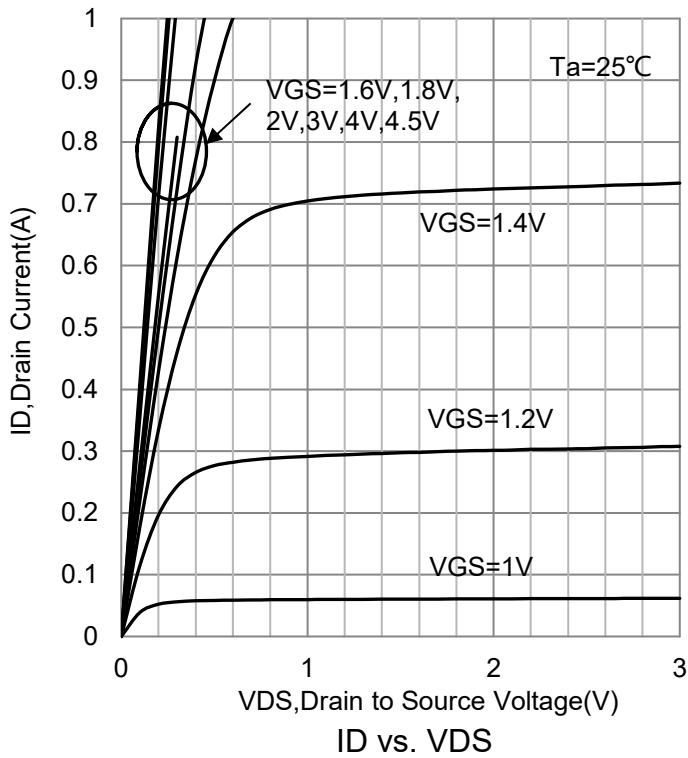
Total Gate Charge	(VDS = 10 V, VGS = 4.5 V, ID = 250 mA)	Qg	-	750	-	pC
Gate-Source Charge		Qgs	-	75	-	
Gate-Drain Charge		Qgd	-	225	-	
Turn-On Delay Time	(VDD = 10 V, RL = 47Ω, ID=200 mA, VGEN = 4.5 V, RG = 10Ω)	td(on)	-	5	-	ns
Rise Time		tr	-	5	-	
Turn-Off Delay Time		td(off)	-	25	-	
Fall Time		tf	-	11	-	
Input Capacitance	VGS = 0 V, VDS = 0 V, f = 1MHz	Ciss	-	80	-	pF
Output Capacitance		Coss	-	50	-	
Reverse Transfer Capacitance		Crss	-	35.6	-	
Input Capacitance	VGS = 0 V, VDS = 10 V, f = 1MHz	Ciss	-	58.4	-	pF
Output Capacitance		Coss	-	12.2	-	
Reverse Transfer Capacitance		Crss	-	8	-	

3. Pulse test; pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$.

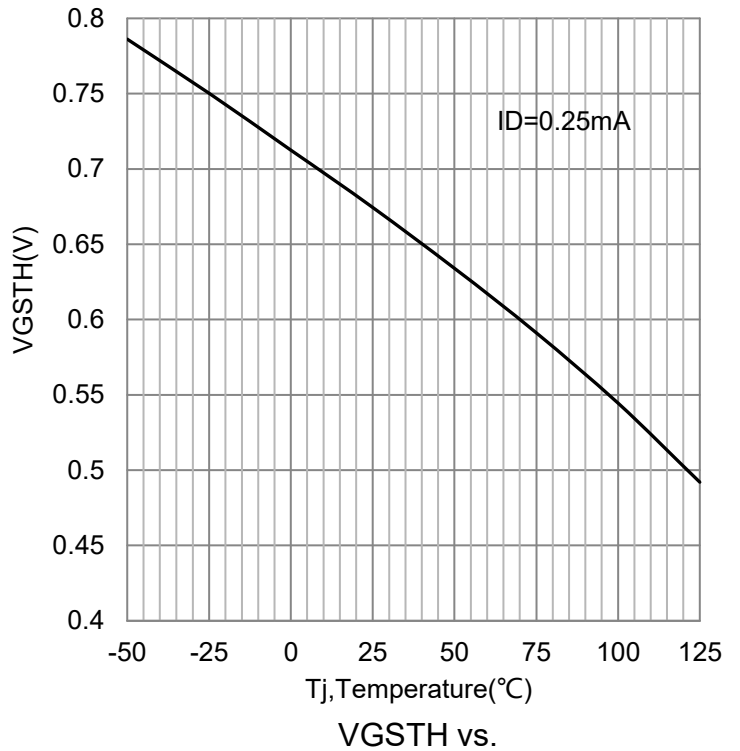
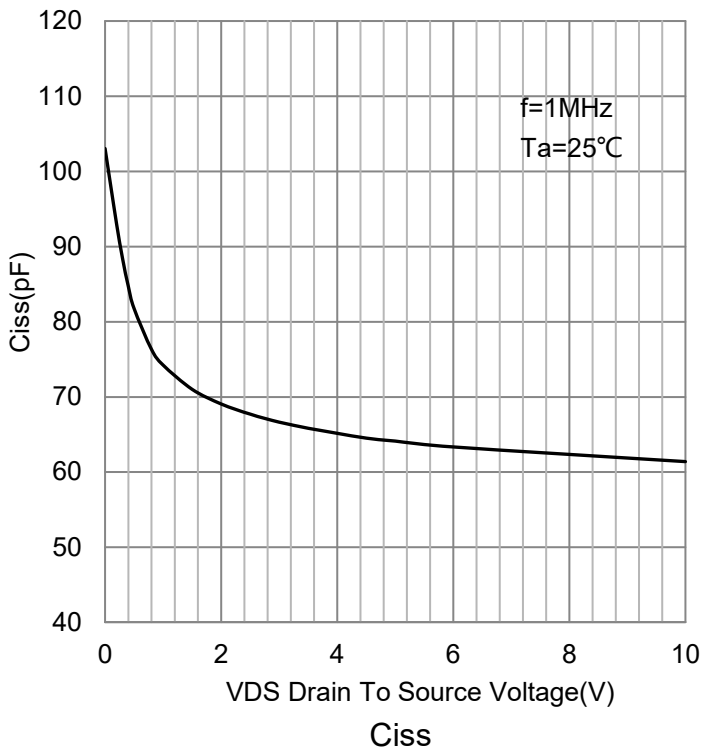
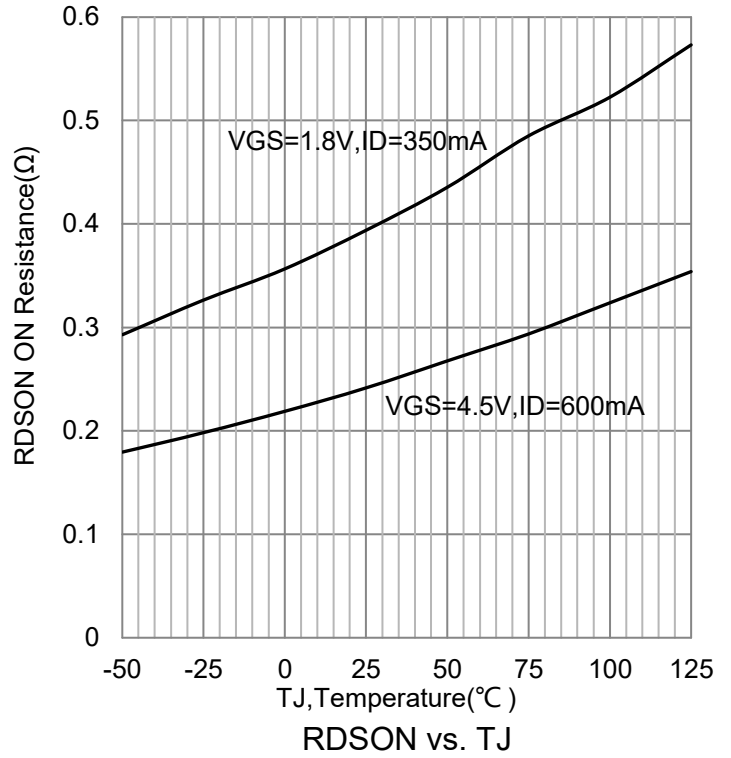
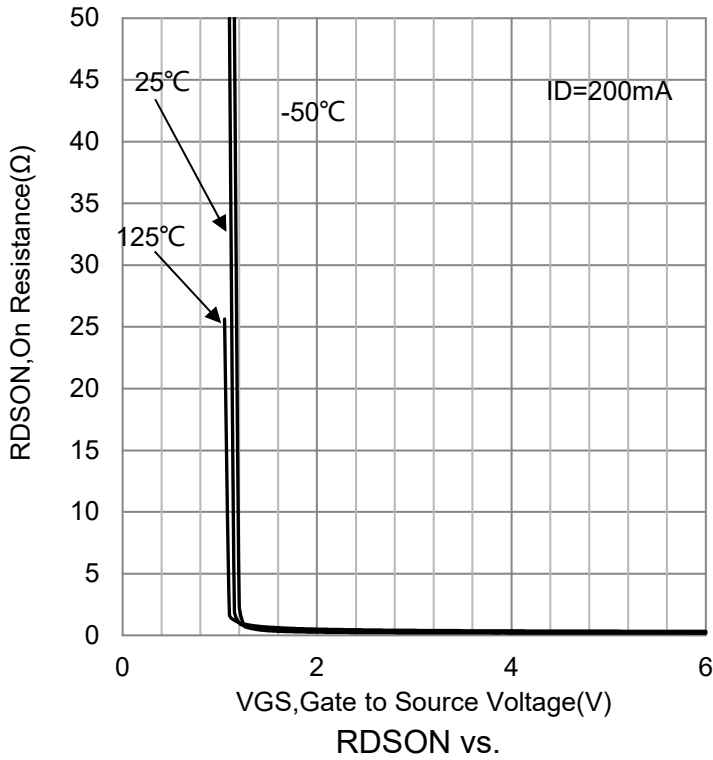
4. Guaranteed by design, not subject to production testing.



7.ELECTRICAL CHARACTERISTICS CURVES



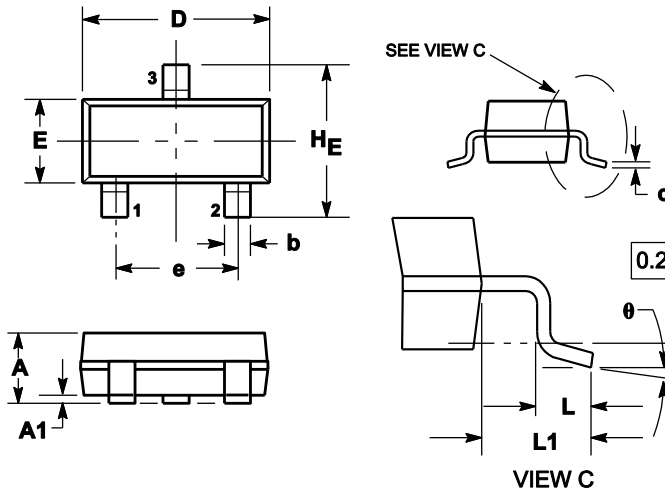
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



8. OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

9. SOLDERING FOOTPRINT

