

LSI1012F3T5CG

S-LSI1012F3T5CG

20 V, N-channel Trench MOSFET

1. FEATURES

- 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.
- Gate to Source ESD Protected.

2. APPLICATION

- Relay driver
- High-speed line driver
- Low-side load switch
- Switching circuits

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LSI1012F3T5CG	A	10000/Tape&Reel

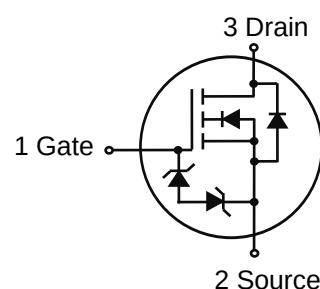
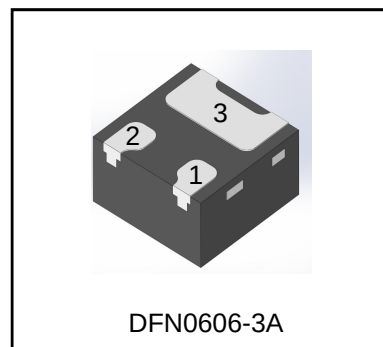
4. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	VDSS	20	V
Gate-Source Voltage	VGSS	±8	V
Drain Current (TA = 25 °C, VGS = 4.5 V) (TA = 100 °C, VGS = 4.5 V)	ID	0.6 0.4	A
Pulsed Drain Current (TA = 25 °C, single pulse, tp ≤ 10 μs)	IDM	2.5	A
Storage Temperature	Tstg	-55~+150	°C
Junction Temperature	TJ	-55~+150	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	300	mW
Thermal Resistance, Junction-to-Ambient(Note 1)	RθJA	416	°C/W
Junction-to-Case	RθJC	154	

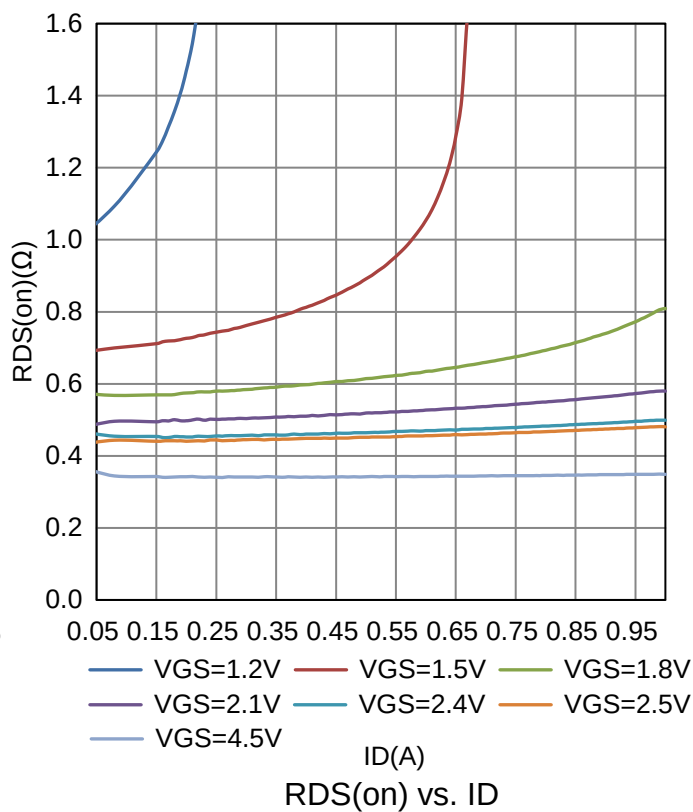
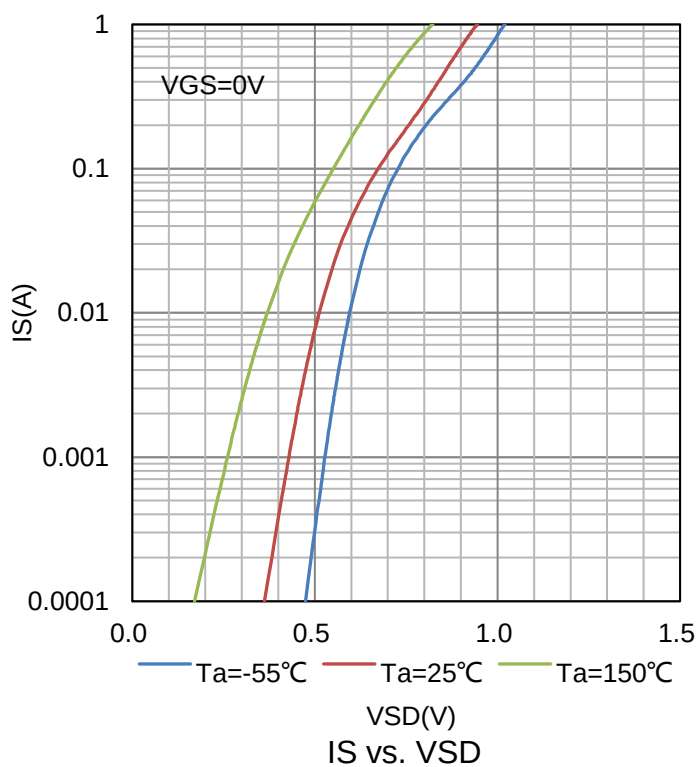
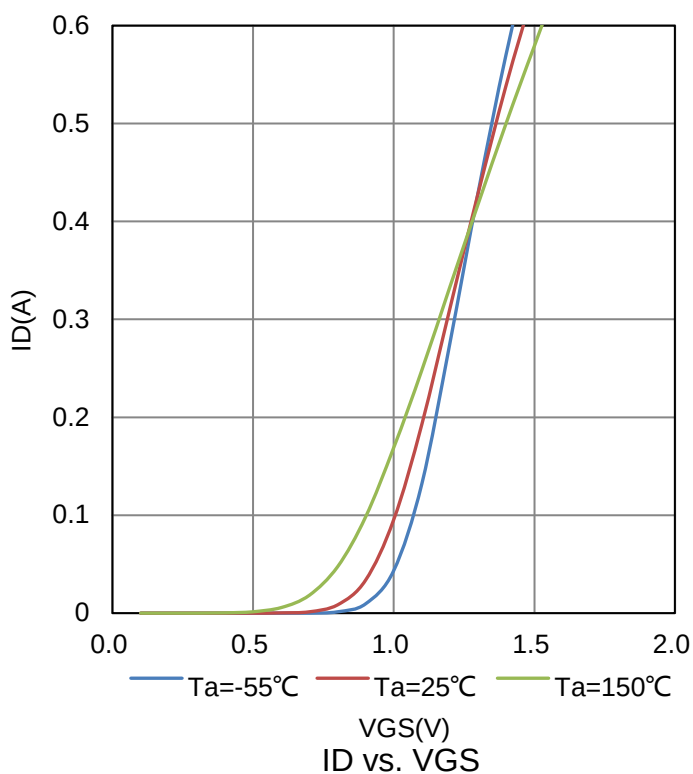
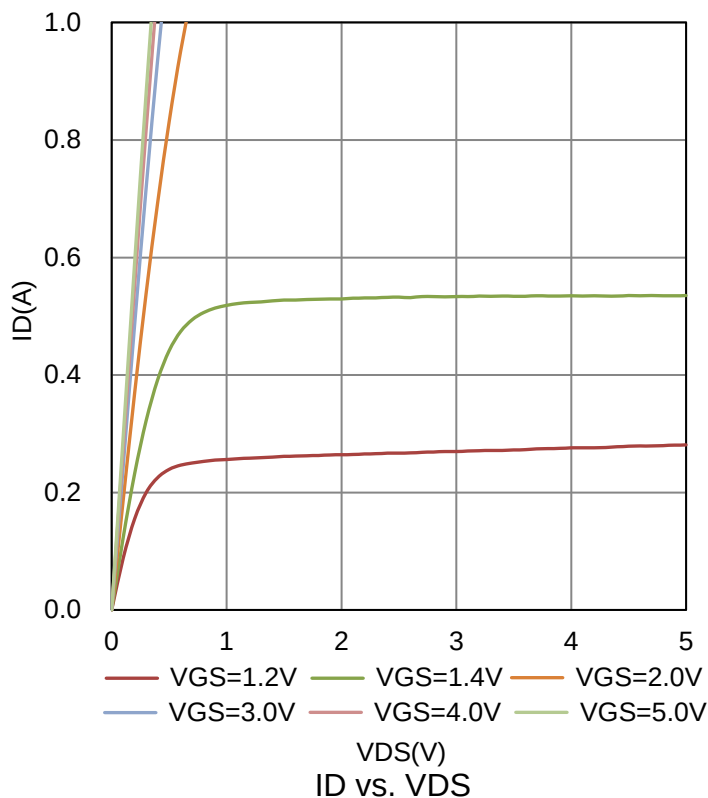
1. 30.0mm×25.0mm×1.6mm(FR4), Copper foil thickness 35μm;



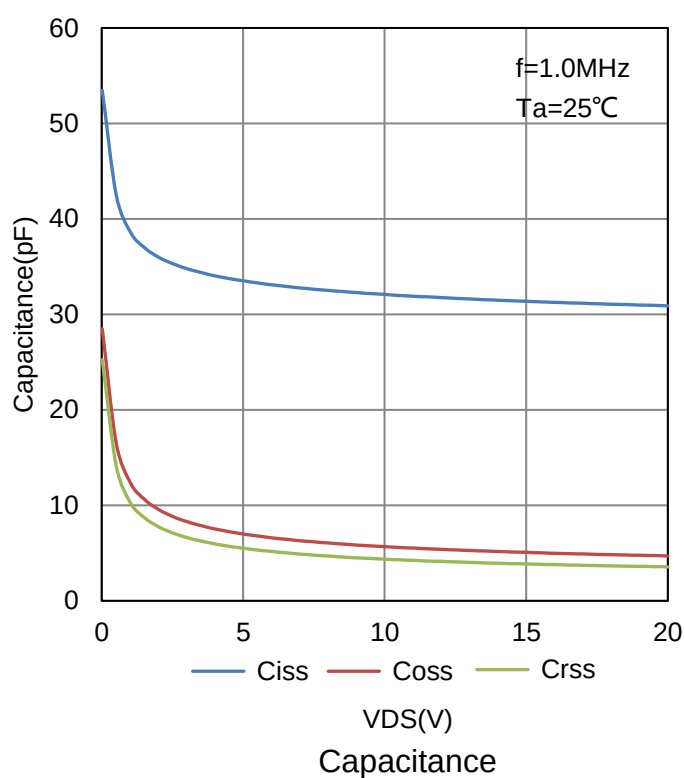
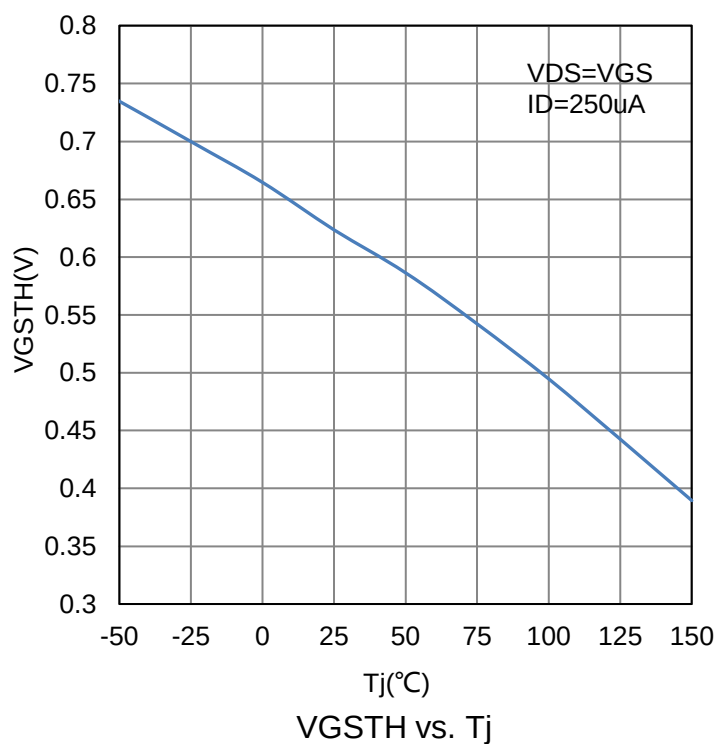
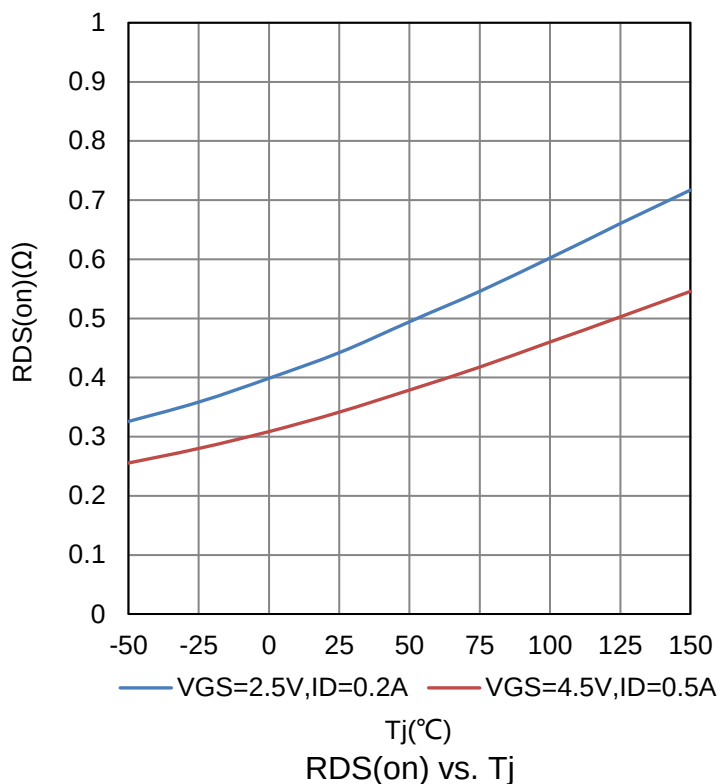
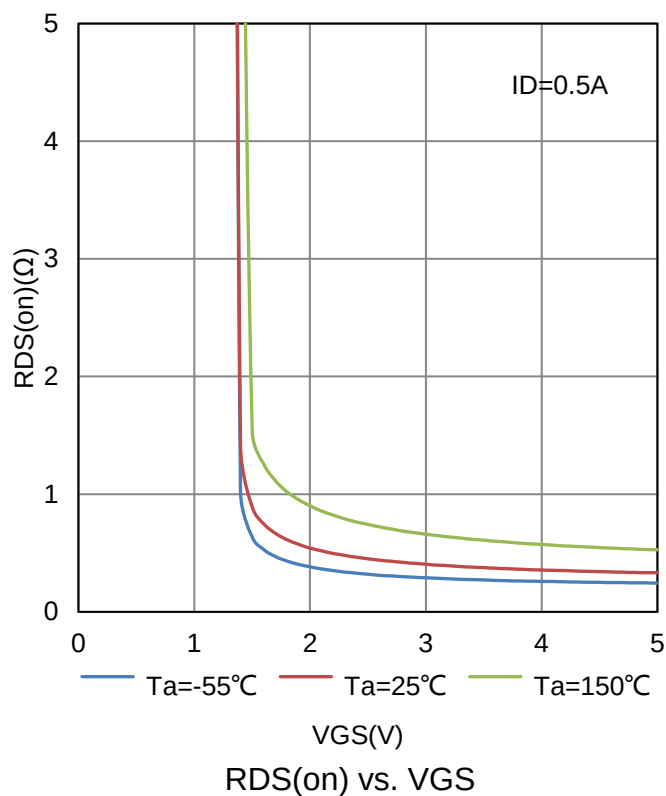
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS = 0 V, IDS = 250 μ A)	BVDSS	20	-	-	V
Gate Threshold Voltage (VDS = VGS, IDS = 250 μ A)	VGS(th)	0.4	0.65	1	V
Drain Leakage Current (VDS = 16 V, VGS = 0V)	IDSS	-	-	1	μ A
Gate Leakage Current (VGS = $\pm$ 8 V, VDS = 0 V)	IGSS	-	-	$\pm$ 10	μ A
Drain-Source On-State Resistance (VGS = 4.5 V, IDS = 0.5 A) (VGS = 2.5 V, IDS = 0.2 A) (VGS = 1.8 V, IDS = 0.1 A) (VGS = 1.5 V, IDS = 0.05 A) (VGS = 1.2 V, IDS = 0.02 A)	RDS(ON)	- - - - -	0.45 0.55 0.75 1.2 2.5	0.6 0.8 1.2 - -	Ω
Diode Forward Voltage (IS = 0.5 A, VGS = 0 V)	VSD	-	0.8	1.3	V
Dynamic					
Input Capacitance	(VGS = 0 V, VDS = 10 V, f=1MHz)	Ciss	-	32	pF
Output Capacitance		Coss	-	5.6	
Reverse Transfer Capacitance		Crss	-	4.35	
Total Gate Charge	(VGS = 4.5 V, VDS = 10 V, ID = 0.6 A)	Qg	-	0.51	nC
Gate-Source Charge		Qgs	-	0.05	
Gate-Drain Charge		Qgd	-	0.20	
Turn-On Delay Time	(VDS=10V, ID=0.5A, VGS=4.5V, RG=6.2 Ω)	td(on)	-	2.8	ns
Rise Time		tr	-	3.0	
Turn-Off Delay Time		td(off)	-	14.2	
Fall Time		tf	-	8.4	
Gate Resistance (VDS=0V, VGS=0V, f=1.0MHz)	Rg	-	91.6	-	Ω

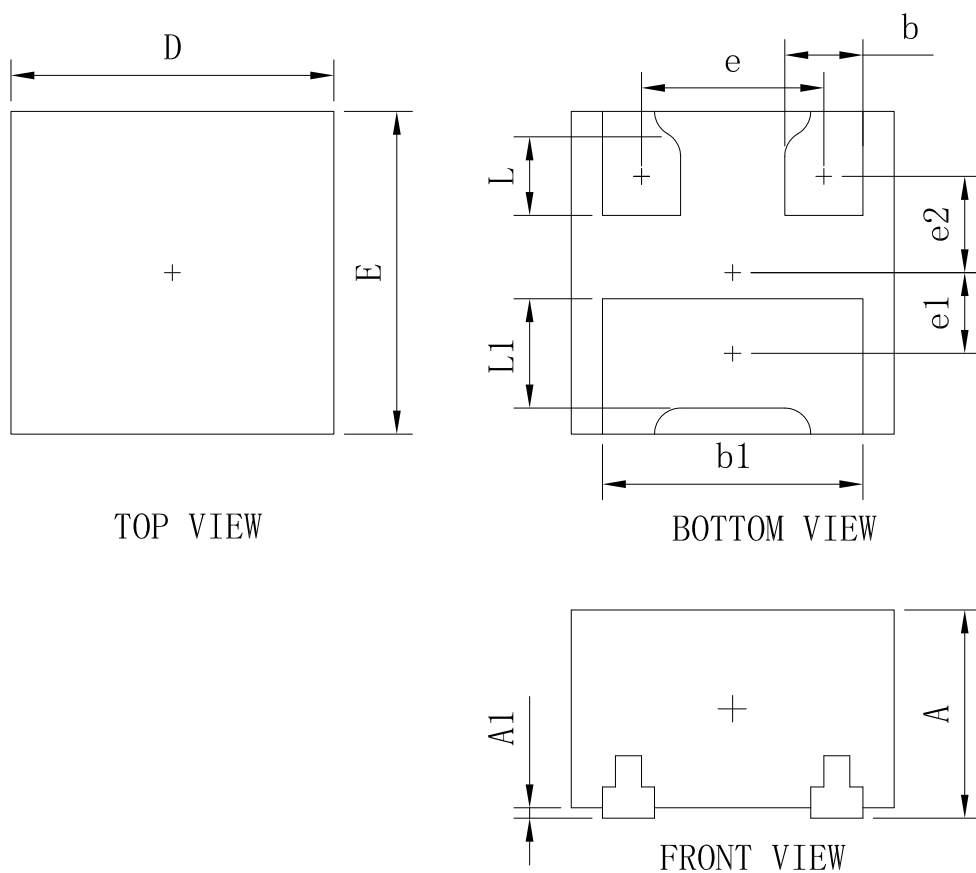
7.ELECTRICAL CHARACTERISTICS CURVES



7.ELECTRICAL CHARACTERISTICS CURVES(Con.)

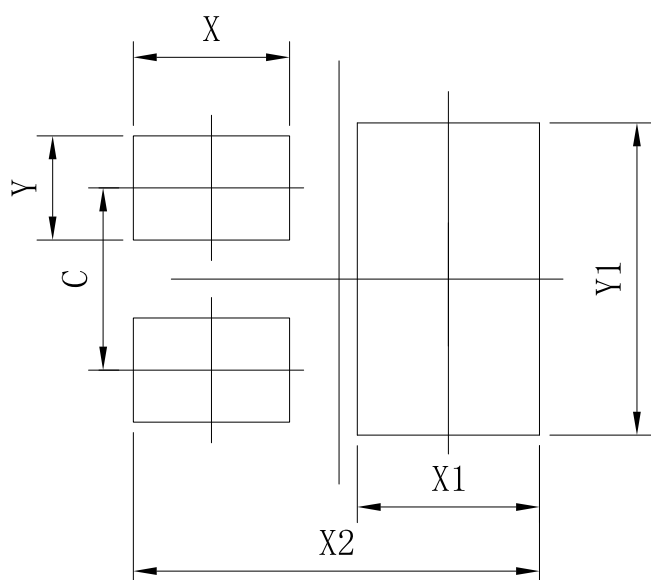


8.OUTLINE AND DIMENSIONS



DFN0606-3A			
Dim	Min	Typ	Max
A	0.35	–	0.40
A1	0	0.02	0.05
b	0.10	0.15	0.20
b1	0.45	0.50	0.55
D	0.57	0.62	0.67
E	0.57	0.62	0.67
e	0.35 BSC		
e1	0.155 BSC		
e2	0.185 BSC		
L	0.10	0.15	0.20
L1	0.16	0.21	0.26
All Dimensions in mm			

9.SOLDERING FOOTPRINT



Dimensions	(mm)
C	0.350
X	0.300
X1	0.350
X2	0.780
Y	0.200
Y1	0.600

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
- Before you use our Products for new Project, you are requested to carefully read this document and fully understand its contents. LRC shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any LRC's Products against warning, caution or note contained in this document.
- All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using LRC's Products, please confirm the latest information with a LRC sales representative.