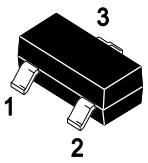
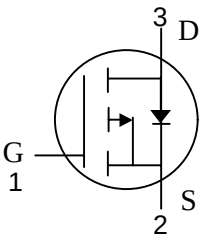
LP2307LT1G
S-LP2307LT1G

16V P-Channel Enhancement-Mode MOSFET



SOT23(TO-236)



1. FEATURES

- VDS =-16V
- RDS(ON),VGS@-4.5V,IDS@-4.7A=70mΩ
- RDS(ON),VGS@-2.5V,IDS@-1A=110mΩ
- 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.
- Advanced trench process technology
- High density cell design for ultra low on-resistance

2. APPLICATIONS

- Simple drive requirement
- Small package outline
- Surface mount device

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LP2307LT1G	P07	3000/Tape&Reel
LP2307LT3G	P07	10000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter		Symbol	Limits	Unit
Drain–Source Voltage		VDSS	-16	V
Gate–to–Source Voltage		VGS	±8	V
Continuous Drain Current(Note 3)	TA =25℃	ID	-4.7	A
	TA =70℃		-3.3	
Pulsed Drain Current(Note 1)		IDM	-20	

5. THERMAL CHARACTERISTICS

Parameter		Symbol	Limits	Unit
Total Power Dissipation	TA =25℃	PD	1.1	W
	TA =70℃		0.7	
Thermal Resistance, Junction–to–Ambient(Note 3)		RΘJA	110	ºC/W
Operating Junction and Storage temperature range		TJ,Tstg	−55~+150	ºC

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

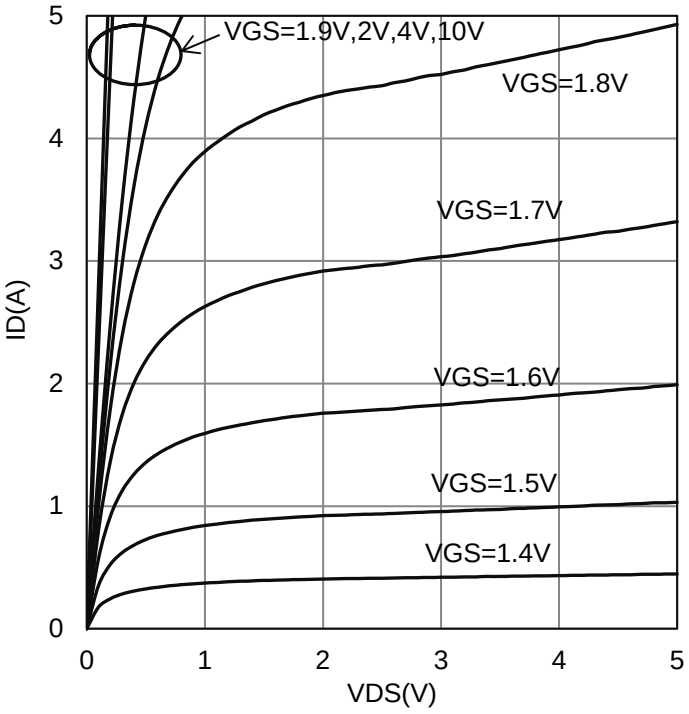
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)		VBRDSS	-16	-	-	V
Gate Threshold Voltage (VDS = VGS, ID = -250μA)		VGS(th)	-0.6	-0.85	-1.4	V
Drain-Source Leakage Current (VDS =-16V, VGS =0V)		IDSS	-	-	-1	μA
Gate-Source Leakage Current (VGS = ±8 V,VDS =0V)		IGSS	-	-	100	nA
Static Drain–Source On–State Resistance(Note 2) (VGS =-4.5V, ID =-4.7A) (VGS =-2.7V, ID =-3.8A) (VGS =-2.5V, ID =-1.0A)		RDS(on)	- - -	48 63 65	70 100 110	mΩ
Forward Transconductance (VDS = -10V, ID = -4.7A)		gfs	-	10.8	-	S
Input Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -15 V)		Ciss	-	828	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -15 V)		Coss	-	75.2	-	
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -15 V)		Crss	-	67.4	-	
Total Gate Charge	(ID =-4.7A,VDS =-10V,VGS =-4.5V)	Qg	-	9.2	-	nC
Gate-Source Charge		Qgs	-	1.3	-	
Gate-Drain Charge		Qgd	-	3.3	-	
Turn-On Delay Time	(VDS=-10V,ID=-1A,RL=10Ω,VGS=-4.5V,RG=6.2Ω,tp=10us)	td(on)	-	18.8	-	ns
Rise Time		tr	-	26	-	
Turn-Off Delay Time		td(off)	-	95.6	-	
Fall Time		tf	-	42	-	
Max Diode Forward Current		IS	-	-	-1.7	A
Forward Voltage (IS =-1.7A, VGS =0V)		VSD	-	-	-1.2	V

1.Pulse width limited by Max. junction temperature.

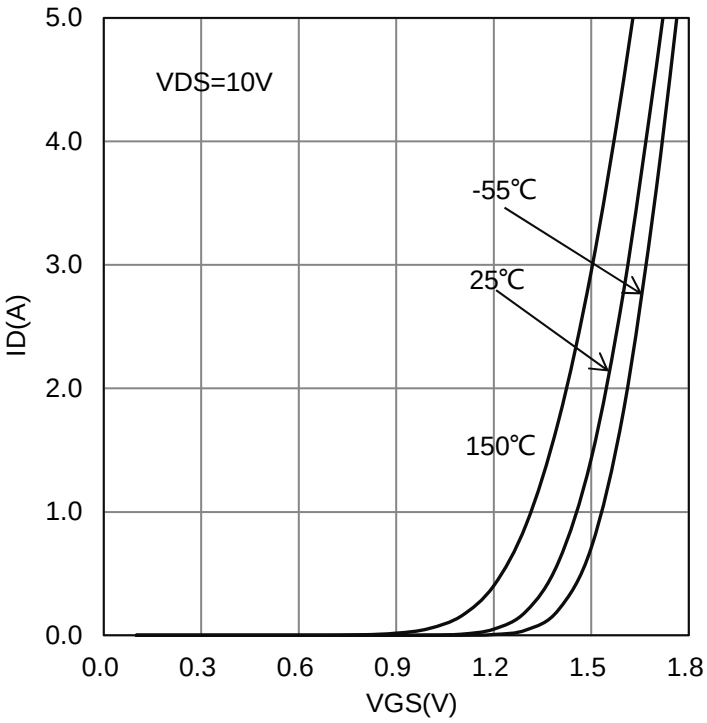
2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

3.Surface mounted on 1 in² copper pad of FR4 board ; 270℃/W when mounted on min. copper pad.

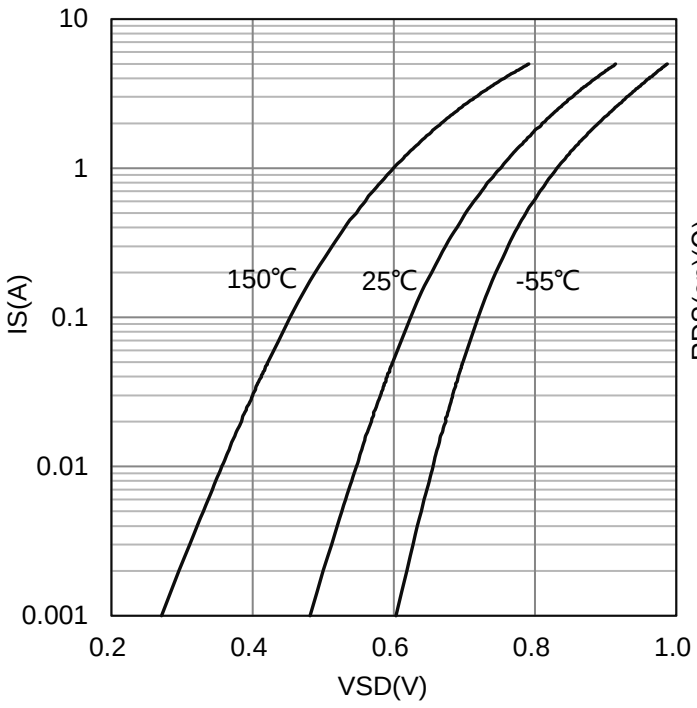
7.ELECTRICAL CHARACTERISTICS CURVES



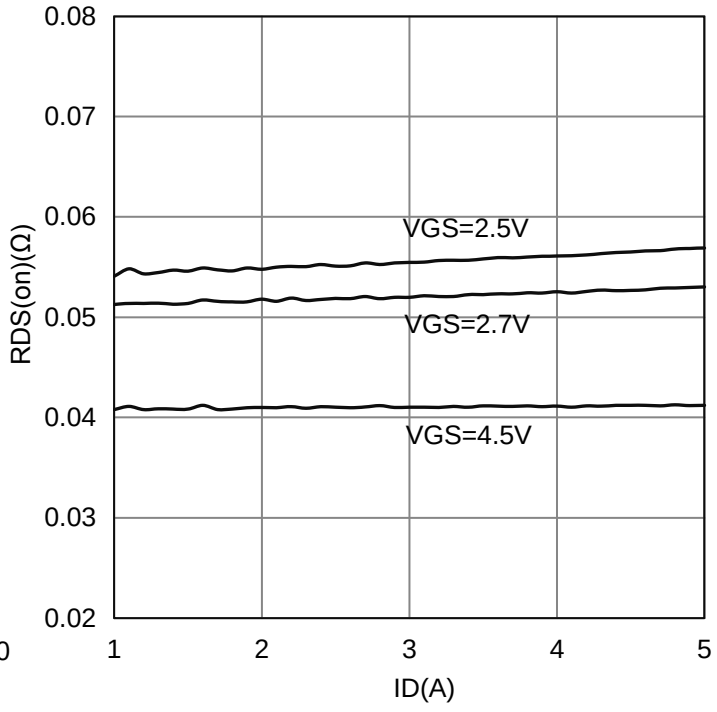
ID vs. VDS



ID vs. VGS

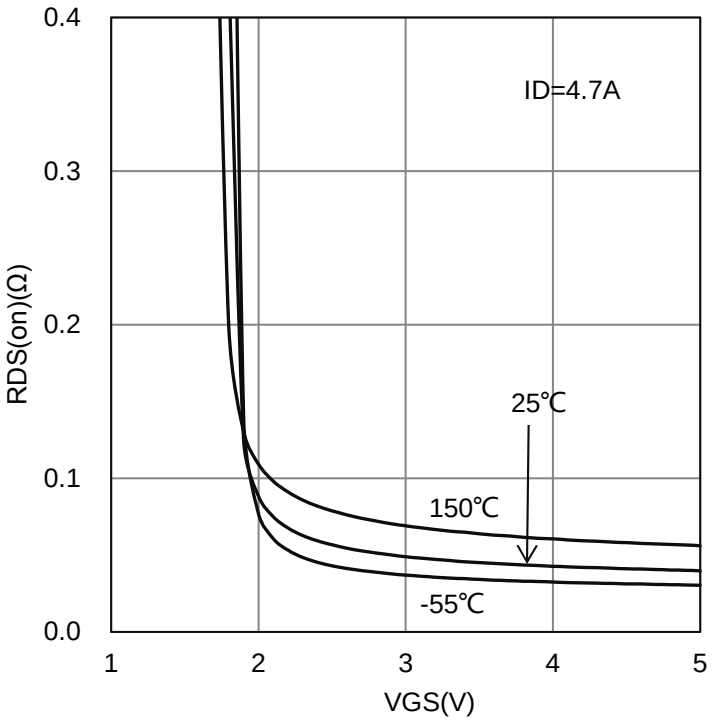


IS vs. VSD

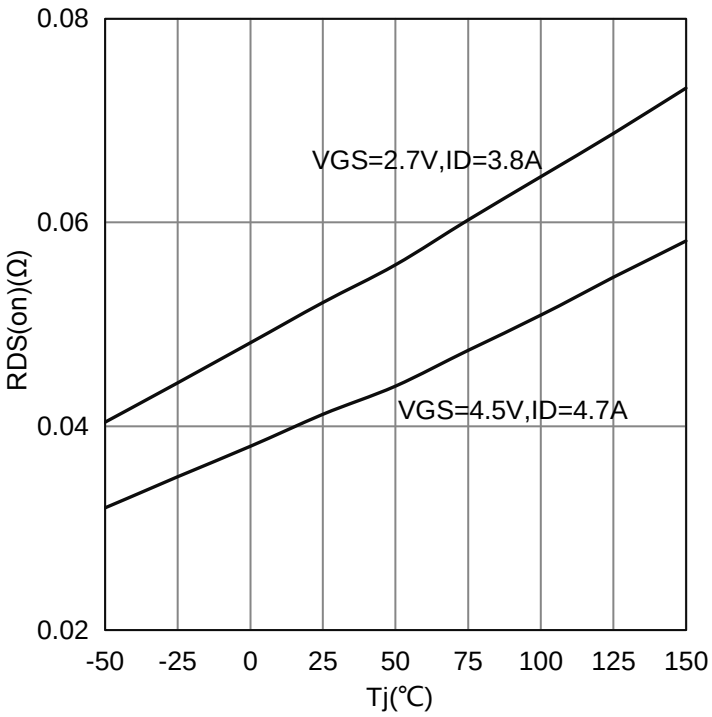


RDS(on) vs. ID

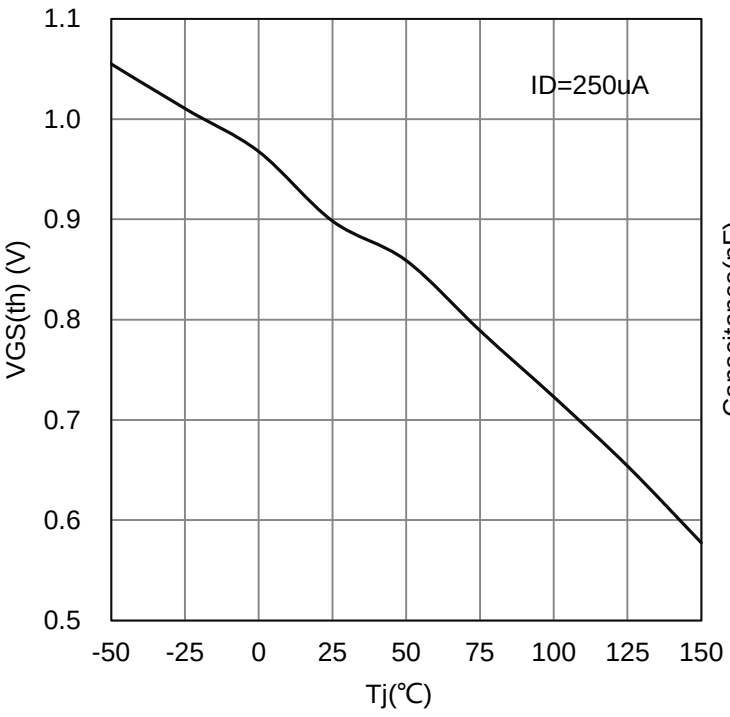
7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



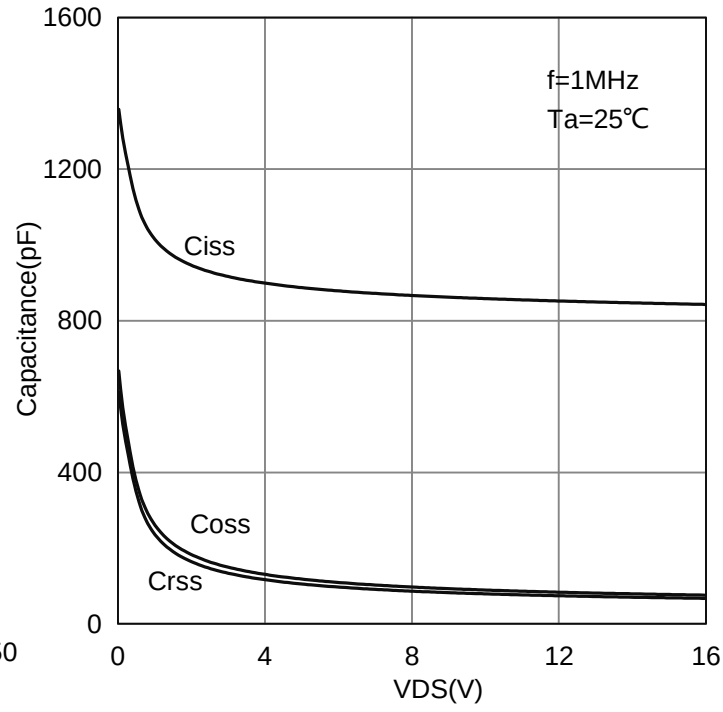
RDS(on) vs. VGS



RDS(on) vs. Tj

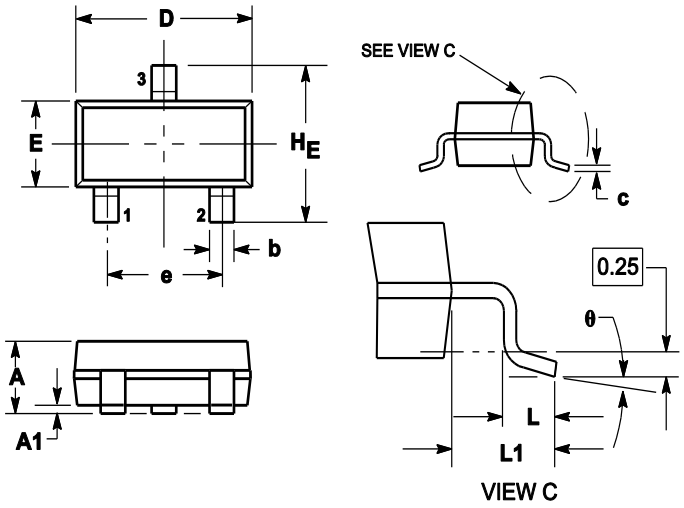


VGSth vs. Tj



Capacitance

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.

	MILLIMETERS			INCHES		
DIM	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
H_E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

9.SOLDERING FOOTPRINT