

LP2305LT1G

S-LP2305LT1G

30V P-Channel Enhancement-Mode MOSFET

1. FEATURES

- $V_{DS} = -30V$
- $R_{DS(ON)}, V_{GS}@-10V, I_{DS}@-4.2A = 70m\Omega$
- $R_{DS(ON)}, V_{GS}@-4.5V, I_{DS}@-4.0A = 85m\Omega$
- $R_{DS(ON)}, V_{GS}@-2.5V, I_{DS}@-1.0A = 130m\Omega$
- 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. APPLICATIONS

- Advanced trench process technology
- High density cell design for ultra low on-resistance.

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LP2305LT1G	P05	3000/Tape&Reel
LP2305LT3G	P05	10000/Tape&Reel

4. MAXIMUM RATINGS($T_a = 25^\circ C$)

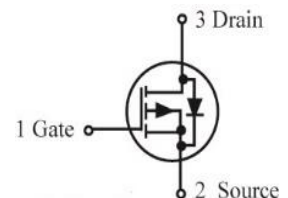
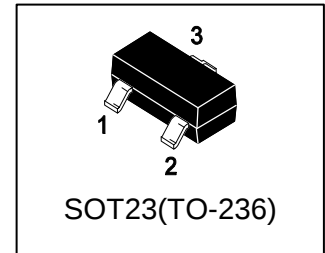
Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-to-Source Voltage – Continuous	V_{GS}	± 12	V
Drain Current			A
– Continuous $T_A = 25^\circ C$	I_D	-4.2	
– Pulsed (Note 1)	I_{DM}	-30	

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Power Dissipation	PD	1.4	W
Thermal Resistance, Junction-to-Ambient(Note 2)	$R_{\theta JA}$	140	$^\circ C/W$
Junction and Storage temperature	T_J, T_{stg}	$-55 \sim +150$	$^\circ C$

1.Repetitive Rating: Pulse width limited by the maximum junction temperature.

2.1-in² 2oz Cu PCB board.



6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = -250 μ Adc)	VBRDSS	-30	-	-	Vdc
Zero Gate Voltage Drain Current (VGS = 0, VDS = -24 Vdc)	IDSS	-	-	-1	μ Adc
Gate–Body Leakage Current, Forward (VGS = 12 Vdc)	IGSSF	-	-	100	nAdc
Gate–Body Leakage Current, Reverse (VGS = -12 Vdc)	IGSSR	-	-	-100	nAdc

ON CHARACTERISTICS (Note 3)

Forward Transconductance (VDS = -5Vdc, ID = -5Adc)	gfs	7.0	11	-	S
Gate Threshold Voltage (VDS = VGS, ID = -250 μ Adc)	VGS(th)	-0.6	-	-1.3	Vdc
Static Drain–Source On–State Resistance (VGS = -10 Vdc, ID = -4.2 Adc) (VGS = -4.5 Vdc, ID = -4 Adc) (VGS = -2.5 Vdc, ID = -1 Adc)	RDS(on)	- - -	53 64 86	70 85 130	m Ω

DYNAMIC CHARACTERISTICS

Input Capacitance (VGS = 0 V, f = 1.0MHz, VDS = -15 V)	Ciss	-	826.18	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz, VDS = -15 V)	Coss	-	90.74	-	pF
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz, VDS = -15 V)	Crss	-	53.18	-	pF

SWITCHING CHARACTERISTICS

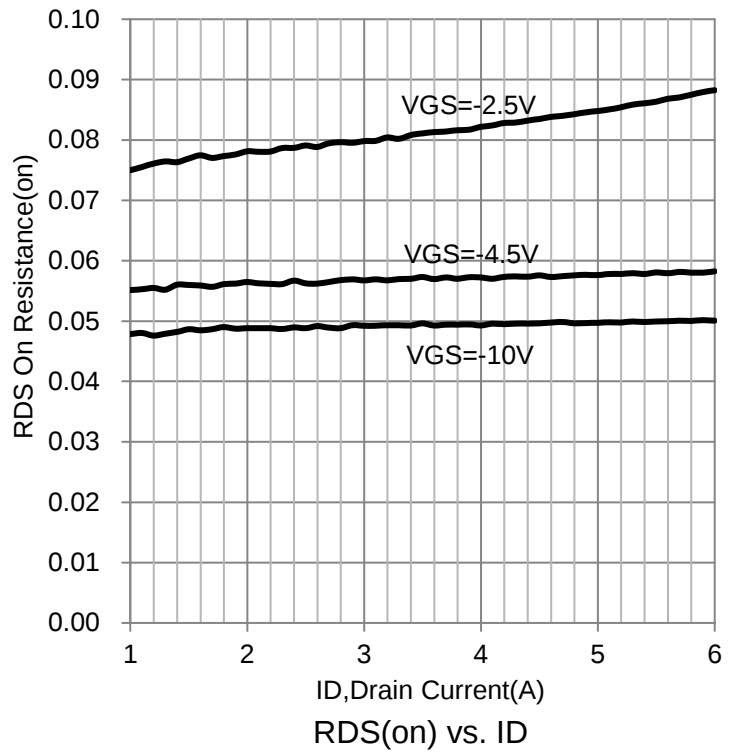
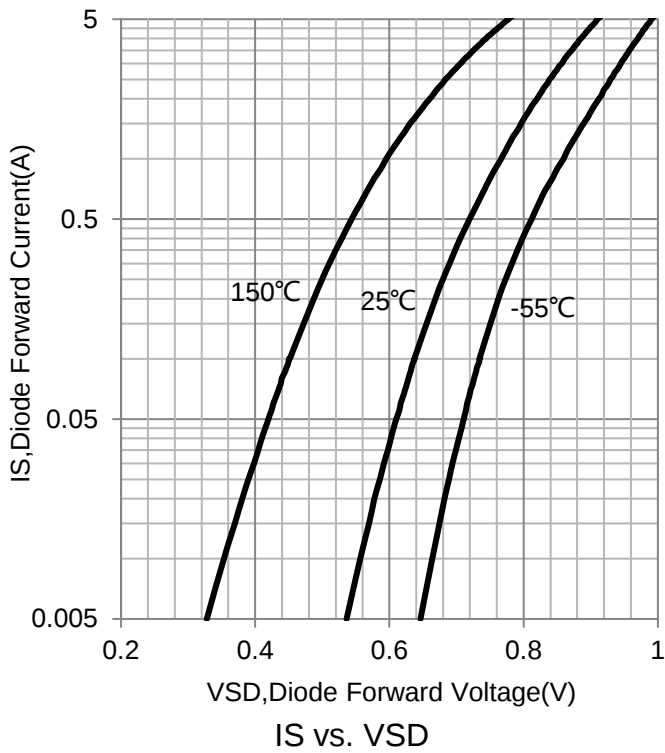
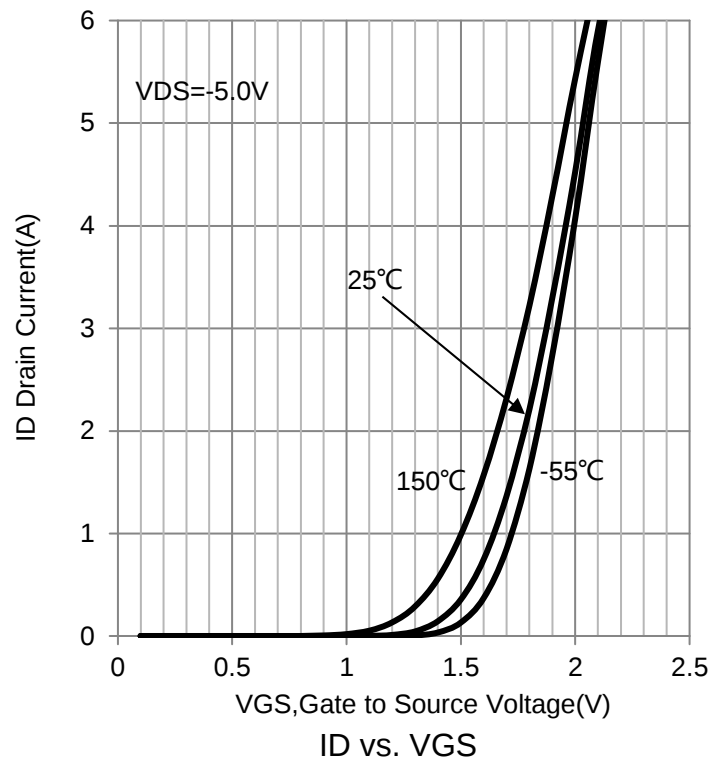
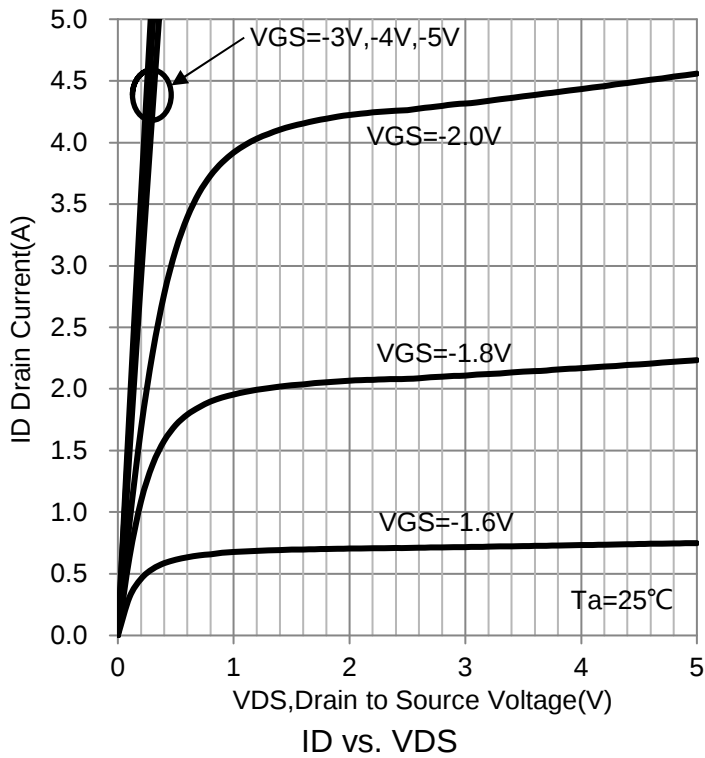
Turn-On Delay Time	(VDD = -15V, RL = 3.6 Ω ID = -1A, VGEN = -10V RG = 6 Ω)	td(on)	-	11.36	-	ns
Rise Time		tr	-	2.32	-	
Turn-Off Delay Time		td(off)	-	34.88	-	
Fall Time		tf	-	3.52	-	

SOURCE–DRAIN DIODE CHARACTERISTICS

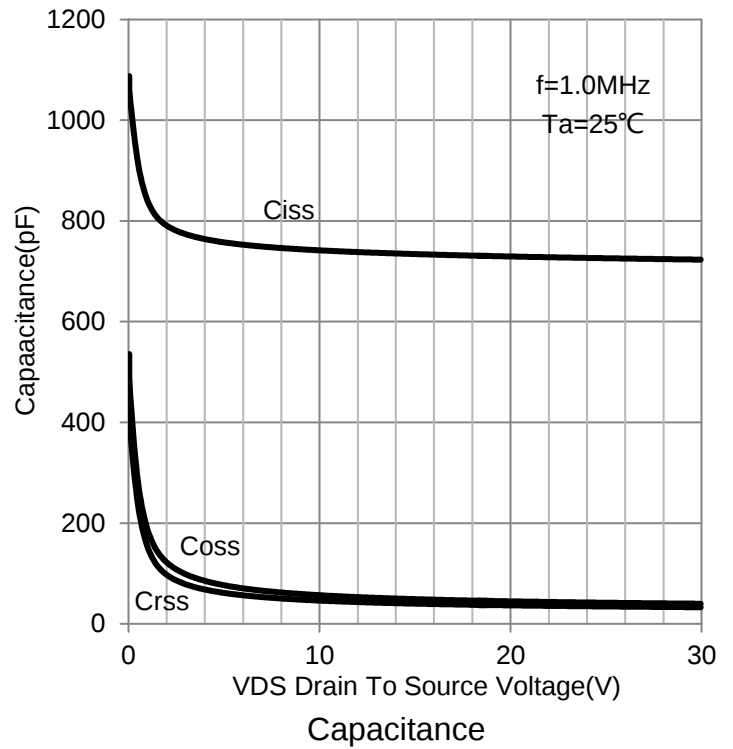
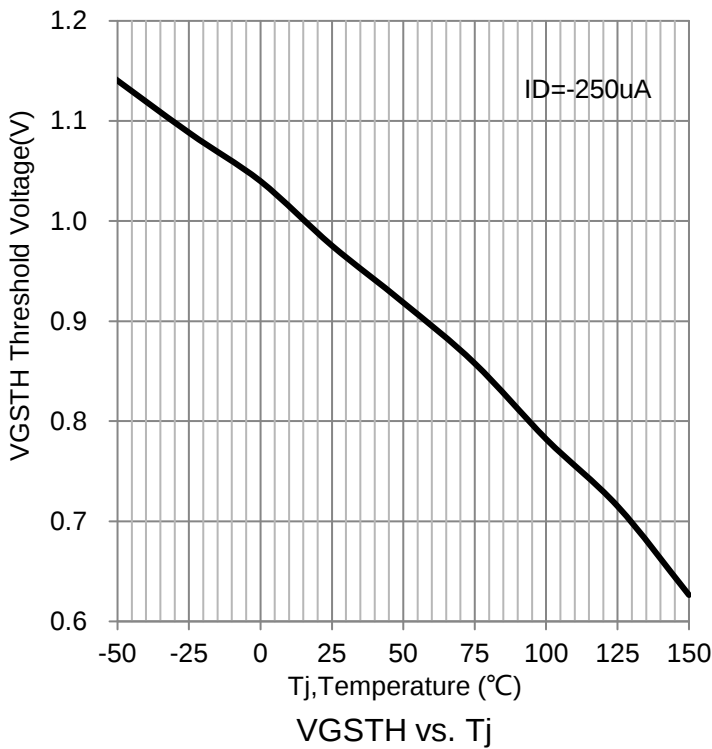
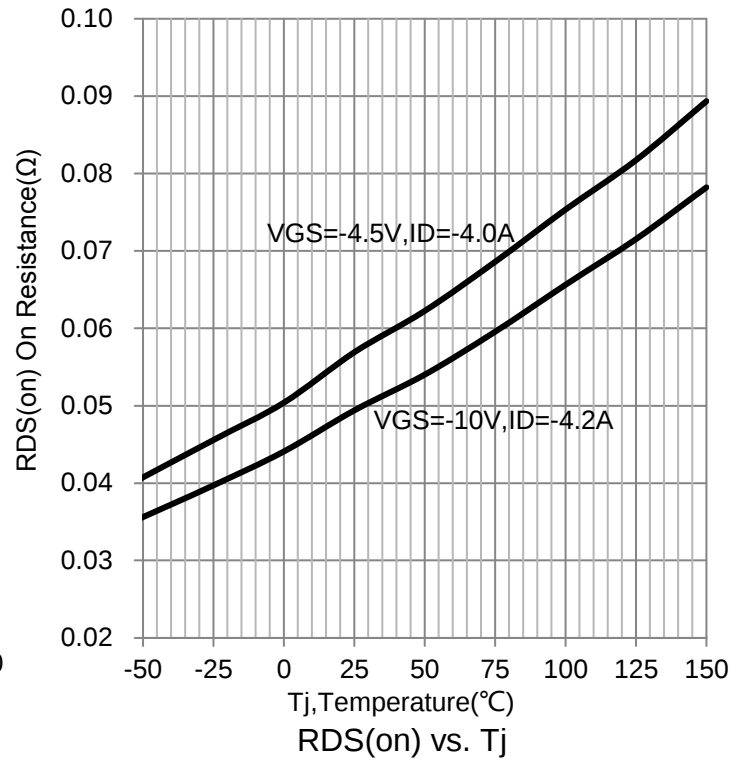
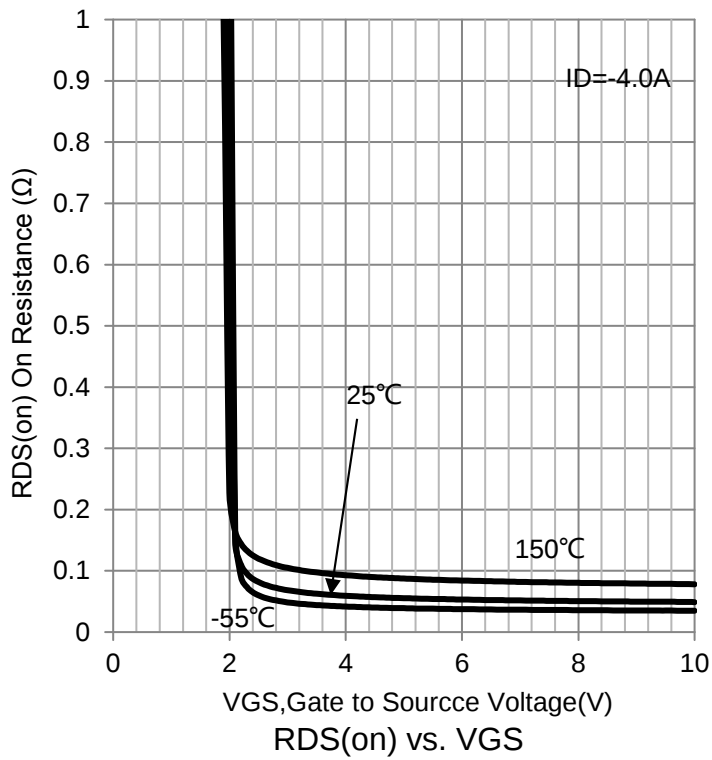
Forward Voltage (VGS = 0 Vdc, ISD = -1 Adc)	VSD	-	-	-1	V
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3. Pulse Test: Pulse Width $\leq$ 300 μ s, Duty Cycle $\leq$ 2.0%.

7. ELECTRICAL CHARACTERISTICS CURVES



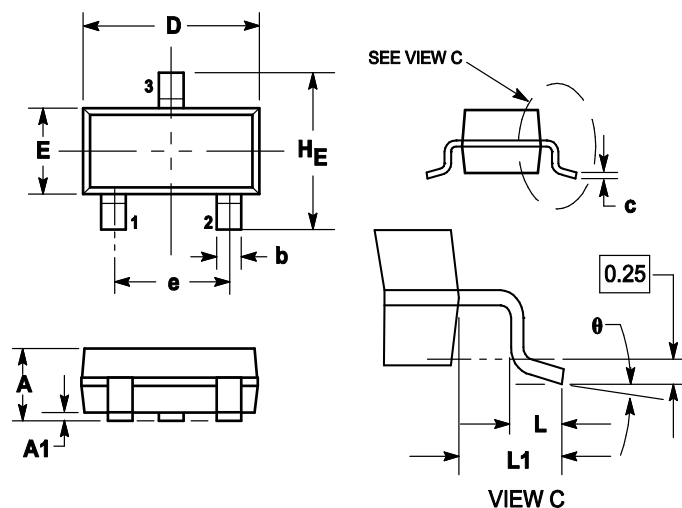
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



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
H _E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

9.SOLDERING FOOTPRINT

