8V P-Channel Enhancement-Mode MOSFET

V_{DS}= -8V

$R_{DS(ON)}$, Vgs@-4.5V, Ids@±3.5A = 58 mΩ
$R_{DS(ON)}$, Vgs@-2.5V, Ids@±3A = 71 mΩ
$R_{DS(ON)}$, Vgs@-1.8V, Ids@±2A = 108 mΩ

LP2305DSLT1G

SOT– 23 (TO–236AB)

Features

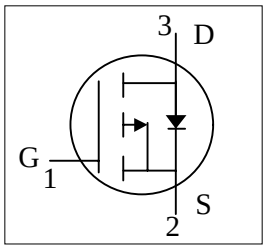
Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

Fully Characterized Avalanche Voltage and Current

Improved Shoot-Through FOM

we declare that the material of product compliance with RoHS requirements.



- **Simple Drive Requirement**
- **Small Package Outline**
- **Surface Mount Device**

Ordering Information

Device	Marking	Shipping
LP2305DSLT1G	P5S	3000/Tape&Reel
LP2305DSLT3G	P5S	10000/Tape&Reel

Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	- 8	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current	I_D	-3.5	A
Pulsed Drain Current [1)]	I_{DM}	-12	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C
Total Device Dissipation FR–5 Board T_A = 25°C	P_D	225	mW

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

LP2305DSLT1G

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static [1]						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250uA	- 8			V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -3.5A		47.0	58.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -2.5V, I_D = -3A		55.0	71.0	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -1.8V, I_D = -2A		67.0	108.0	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = -250uA	-0.45		-0.8	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -6.4V, V_{GS} = 0V			1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ± 8V, V_{DS} = 0V			±100	nA
Forward Transconductance	g_{fs}	V_{DS} = -5V, I_D = -3.5A		8.5		S
On-State Drain Current [2]	$I_{D(on)}$	V_{DS} ≤ –5 V, V_{GS} = –4.5 V	–6			A
		V_{DS} ≤ –5 V, V_{GS} = –2.5 V	–3			
Source-Drain Diode						
Max. Diode Forward Current	I_S			–1.6		A
Diode Forward Voltage	V_{SD}	I_S = -1.6A, V_{GS} = 0V			-1.2	V
Dynamic [3]						
Input Capacitance	C_{iss}	V_{DS} = –4 V, V_{GS} = 0, f = 1MHZ		1245		pF
Output Capacitance	C_{oss}			375		
Reverse Transfer Capacitance	C_{rss}			210		
Switching [3]						
Turn-On Time	$t_{d(on)}$	V_{DD} = –4 V, R_L = 4 Ω I_D = –1.0 A, V_{GEN} = –4.5 V R_G = 6 Ω		13	20	ns
	t_r			25	40	
Turn-Off Time	$t_{d(off)}$			55	80	
	t_f			19	35	

Note: 1. Static parameters are based on package level with recommended wire-bonding
2.For DESIGN AID ONLY, not subject to production testing.
3.Pulse test: PW ≤300 μs duty cycle ≤2%.

LP2305DSLT1G

TYPICAL ELECTRICAL CHARACTERISTICS

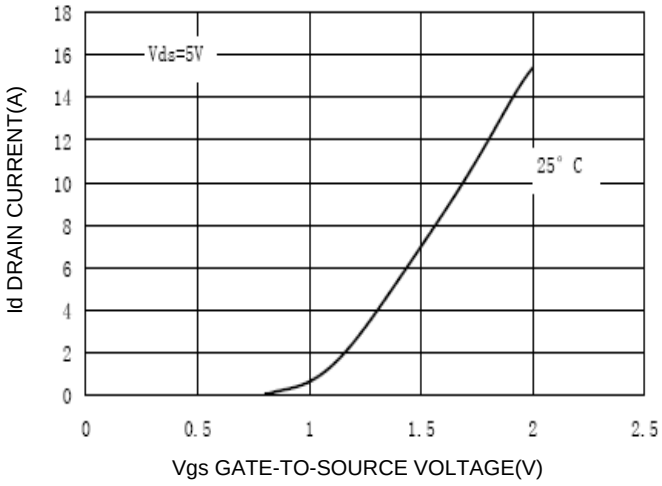


Figure 1. Transfer Characteristics

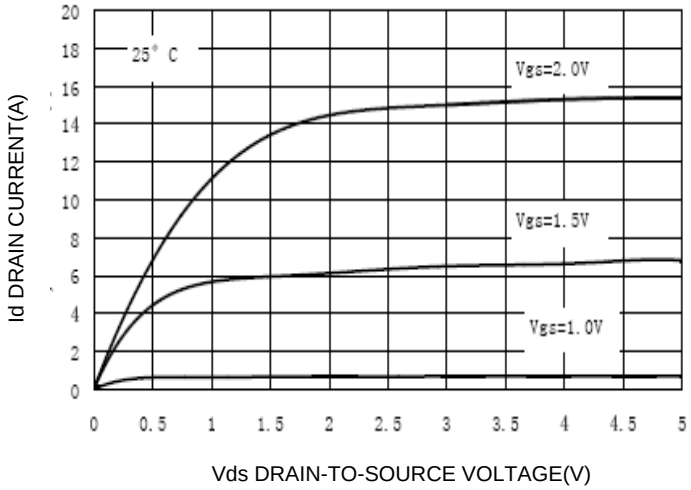


Figure 2. On–Region Characteristics

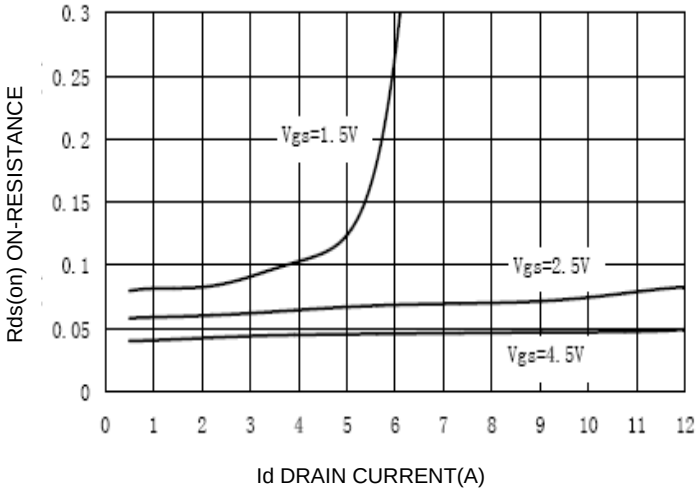


Figure 3. On–Resistance versus Drain Current

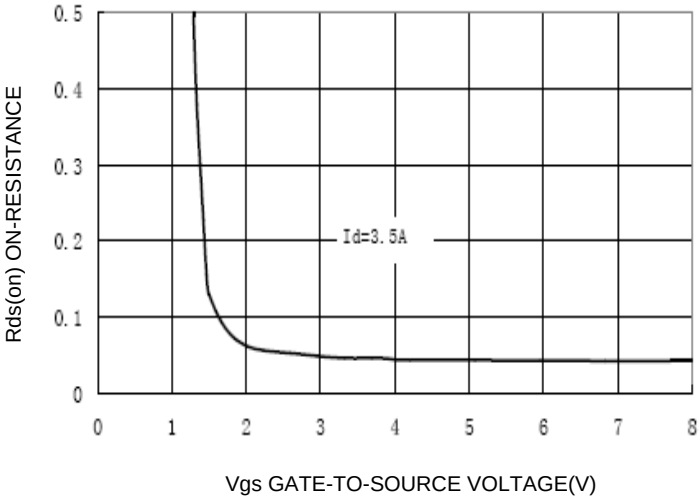


Figure 4. On-Resistance vs. Gate-to-Source Voltage

LP2305DSLT1G

TYPICAL ELECTRICAL CHARACTERISTICS

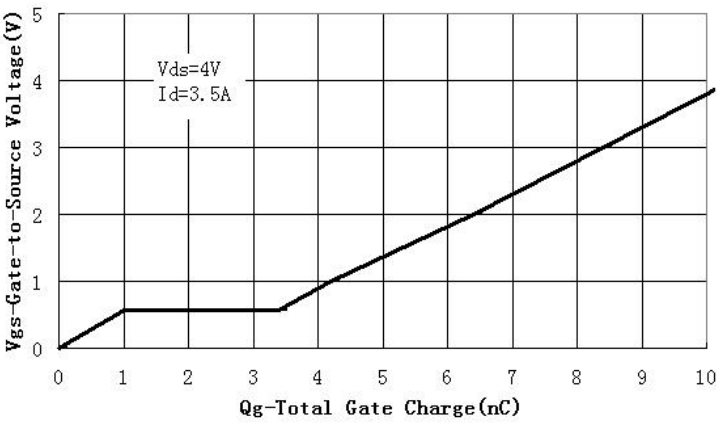


Figure 5. Gate Charge

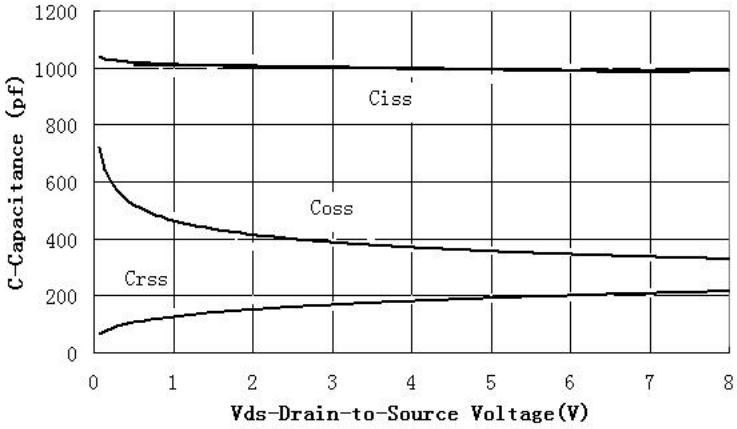


Figure 6. Capacitance

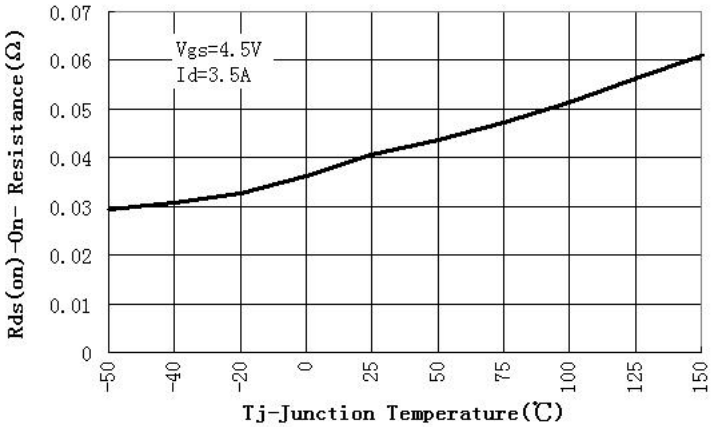
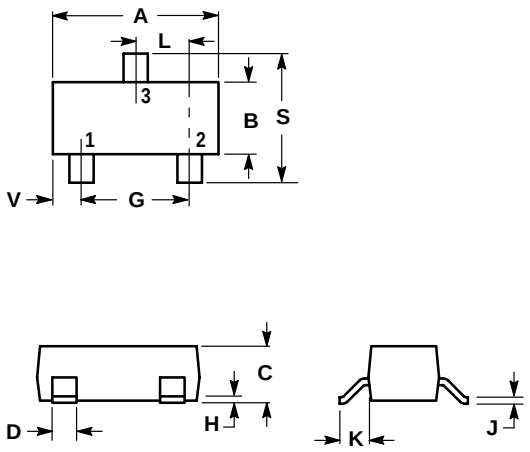


Figure 7. On-Resistance Vs.Junction Temperature

LP2305DSLT1G

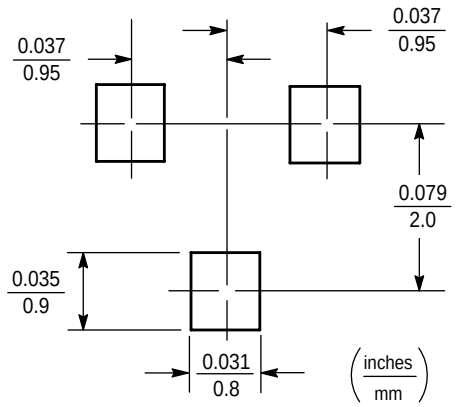
SOT–23



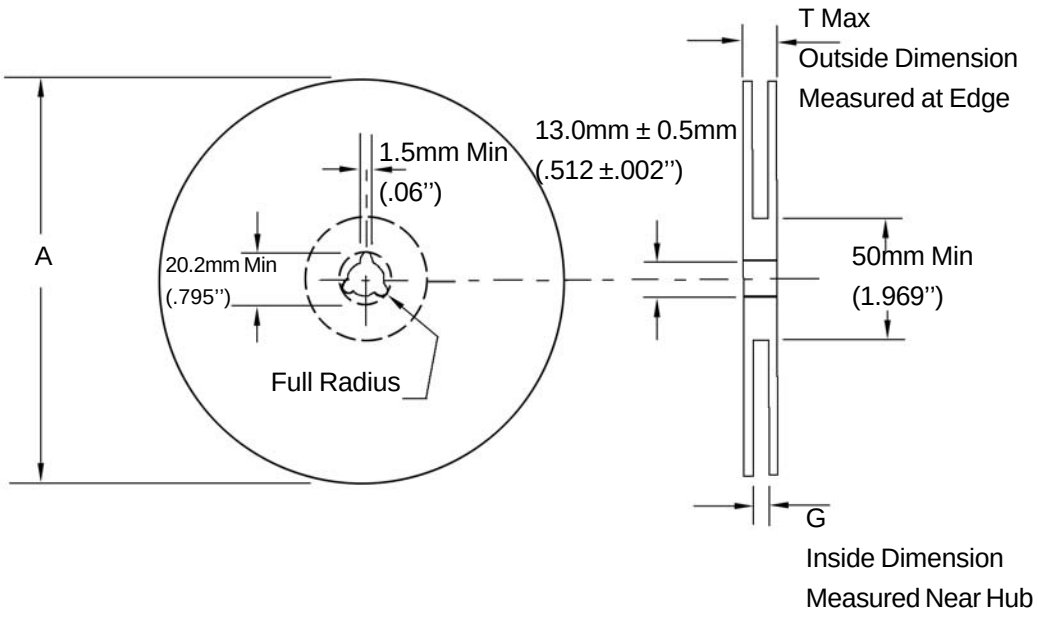
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60



EMBOSSED TAPE AND REEL DATA FOR DISCRETES



Size	A Max	G	T Max
8 mm	178.0mm (7.0")	8.4mm+1.5mm, -0.0 (.33"+.039", -0.00)	10.9mm (.43")

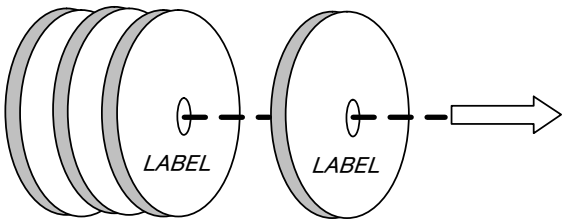
Reel Dimensions

Metric Dimensions Govern — English are in parentheses for reference only

Storage Conditions

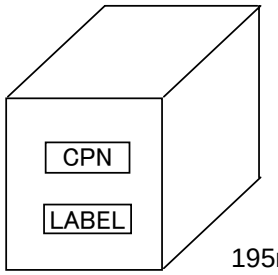
Temperature: 5 to 40 Deg.C (20 to 30 Deg. C is preferred)
Humidity: 30 to 80 RH (40 to 60 is preferred)
Recommended Period: One year after manufacturing
(This recommended period is for the soldering condition only. The characteristics and reliabilities of the products are not restricted to this limitation)

Shipment Specification



10 Reel

3000PCS/Reel
8000PCS/Reel (SOT-723,SOD-723,SOD-923)

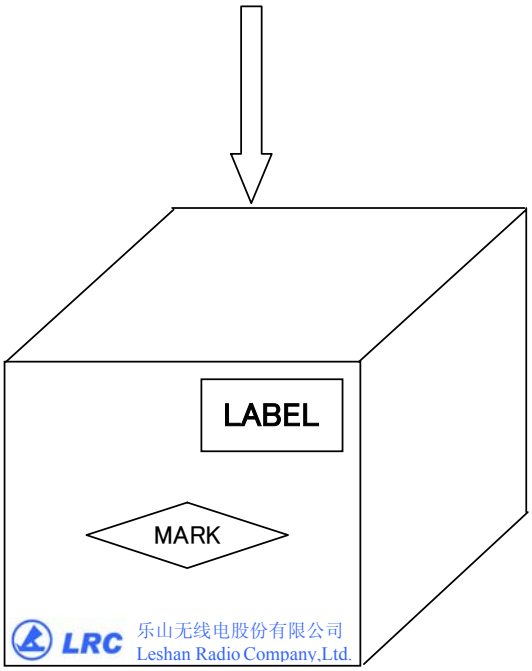


Dim(Unit:mm)

195mm*195mm*150mm

10Reel/Inner Box

30KPCS/Inner Box
80KPCS/Inner Box (SOT-723,SOD-723,SOD-923)



Dim(Unit:mm)

460mm*400mm*420mm

12 Inner Box/Carton

360KPCS/Carton
960KPCS/Carton (SOT-723,SOD-723,SOD-923)