

SOT-23-6L Plastic-Encapsulate MOSFETS

LJ8205NT6G

Dual N-Channel Enhancement Mode MOSFET

$V_{(BR)DSS}(V)$	$I_D(A)$	$R_{DS(on)TYP}(m\Omega)$
20	5	27 @ $V_{GS}=4.5V$
		35 @ $V_{GS}=2.5V$

Description

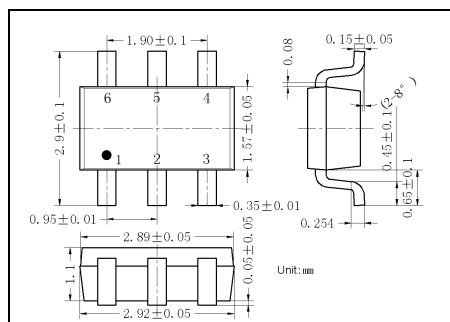
LJ8205NT6G uses advanced power trench technology that has been especially tailored to minimize the on-state resistance. This device is suitable for un-directional or bidirectional load switch, facilitated by its common-drain configuration.

Features

- Super high dense cell for low $R_{DS(ON)}$
- RoHS Compliant and Halogen-Free

Applications

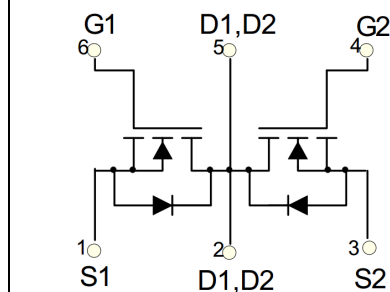
- Battery protection
- Load switch



4.6. Gate

2.5. Drain

1.3. Source



Absolute Maximum Rating

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	5	A
P_D	Power Dissipation	1.5	W
I_{DM}	Pulsed Drain Current ¹	25	A
T_J	Junction Temperature	150	$^{\circ}C$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}C$
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient ²	83.3	$^{\circ}C/W$

Electrical Characteristics (T_{amb}=25°C unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250μA	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 20V, V _{GS} = 0 V	-	-	1	μA
I_{GSS}	Gate-body Leakage Current	V _{DS} = 0 V, V _{GS} = ±12V	-	-	±100	nA
V_{GS(th)}	Gate threshold voltage	V _{DS} = V _{GS} , I _D = 250μA	0.5	0.7	1.2	V
R_{DS(on)}	Drain-Source On-state Resistance ³	V _{GS} = 4.5V, I _D = 4.5A	-	21	27	mΩ
		V _{GS} = 2.5V, I _D = 3.5A	-	26	35	
Dynamic Characteristics⁴						
C_{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 8V, f = 1MHz	-	400	-	pF
C_{oss}	Output Capacitance		-	80	-	
C_{rss}	Reverse Transfer Capacitance		-	70	-	
Switching Characteristics⁴						
Q_g	Total Gate Charge ⁴	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 4A	-	11	-	nC
Q_{gs}	Gate-Source Charge ⁴		-	2.3	-	
Q_{gd}	Gate-Drain Charge ⁴		-	2.5	-	
t_{d(on)}	Turn-on Time ⁴	V _{DD} = 10V, V _{GS} = 4V, I _D = 1A, R _{REN} = 10Ω	-	18	-	ns
t_r	Rise Time ⁴		-	5	-	
t_{d(off)}	Turn-off Time ⁴		-	43	-	
t_f	Fall Time ⁴		-	20	-	
Source-Drain Diode characteristics						
V_{SD}	Body Diode Voltage	I _S = 1.7A, V _{GS} = 0V	-	-	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 board using 1 square inch pad size, 1oz single-side copper.
3. Pulse Test: Pulse width ≤ 300μs, duty cycle ≤ 0.5%.
4. Guaranteed by design, not subject to product.

Typical Characteristics

Figure 1. Output Characteristics

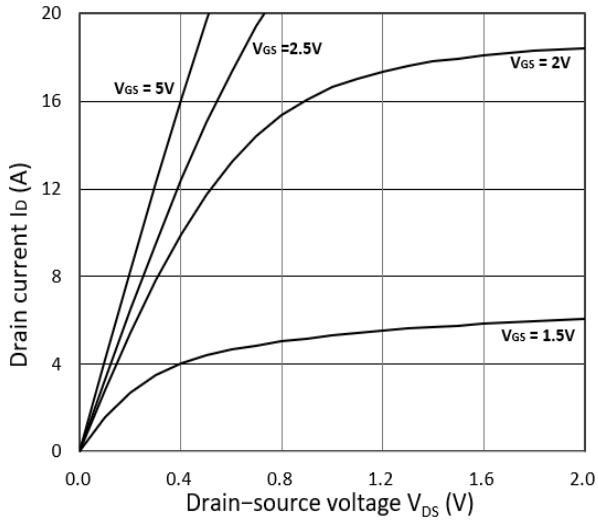


Figure 2. Transfer Characteristics

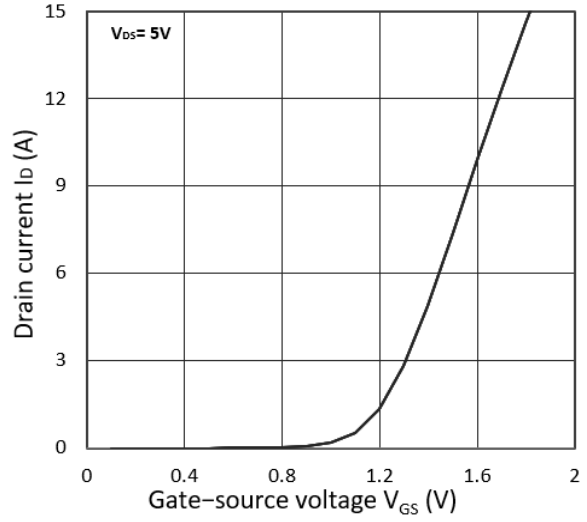


Figure 3. $R_{DS(ON)}$ vs. I_D

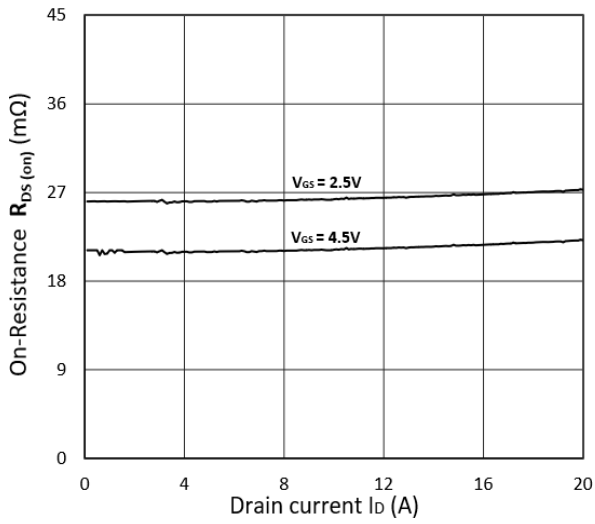


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

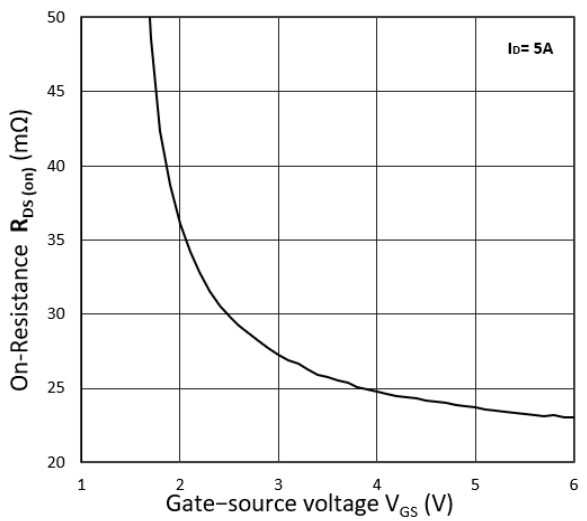


Figure 5. I_S vs. V_{SD}

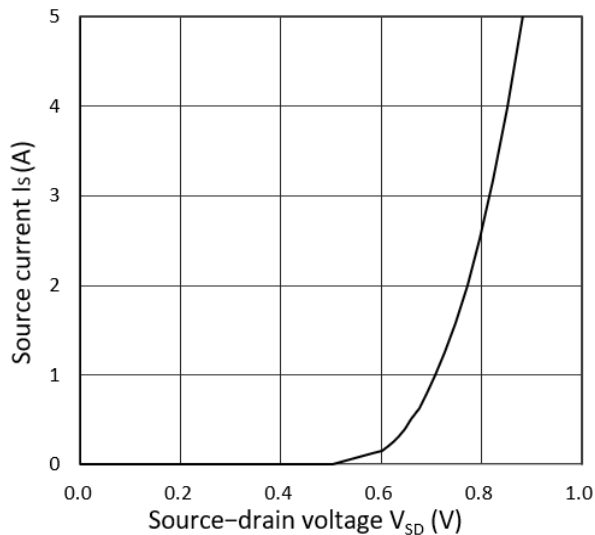
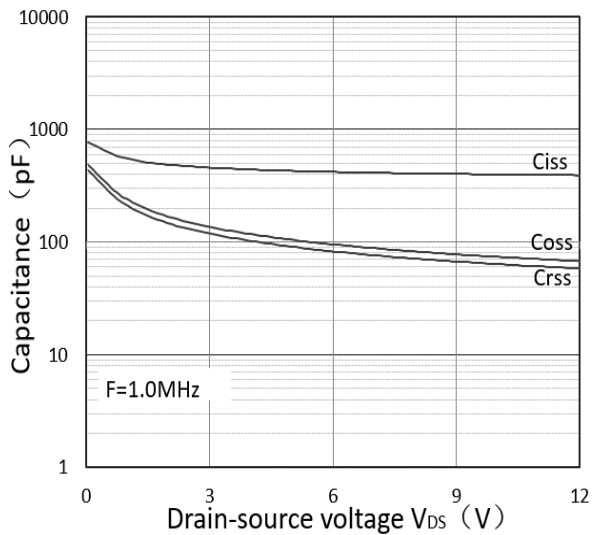
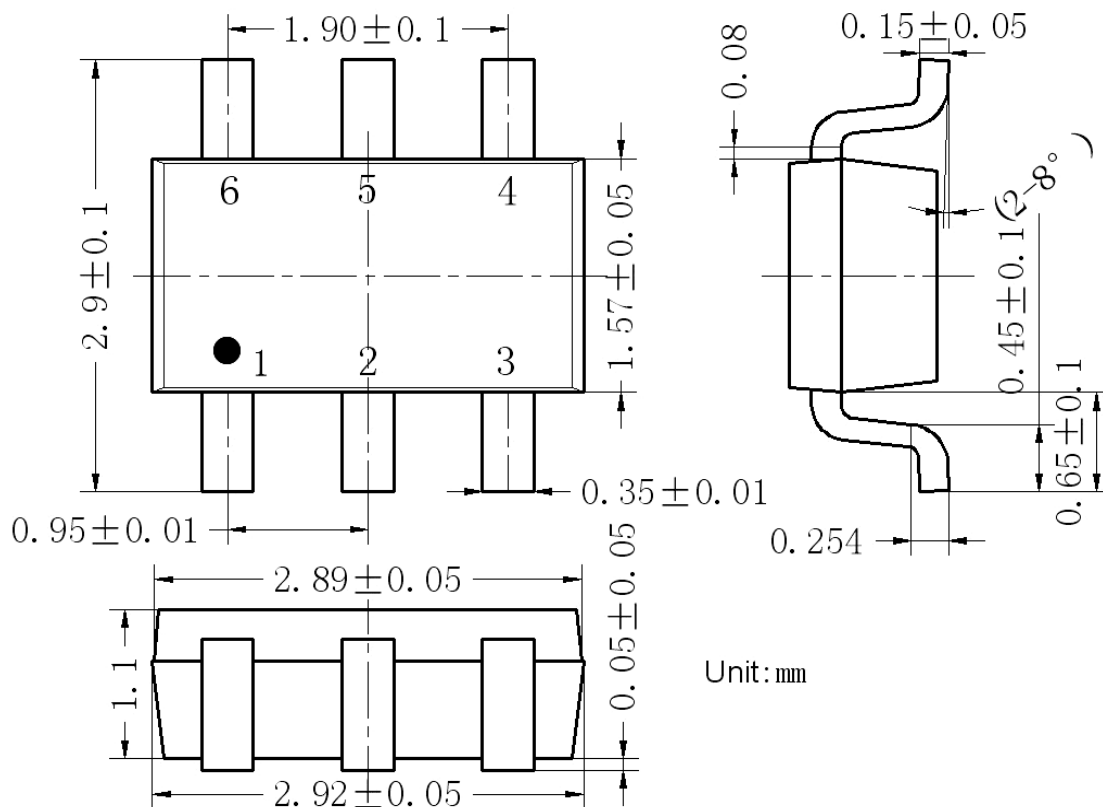


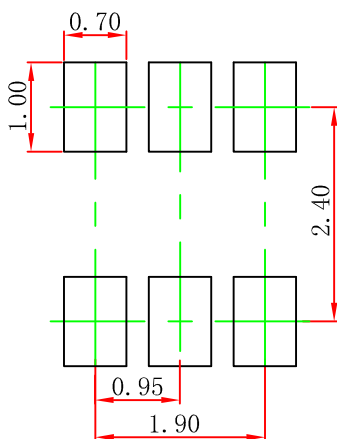
Figure 6. Capacitance Characteristics



SOT-23-6L Package Outline Dimensions



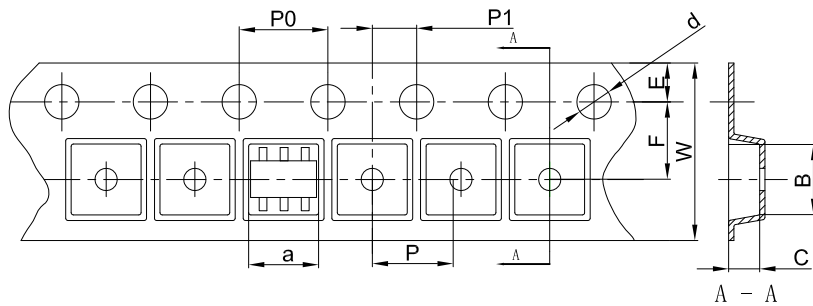
SOT-23-6L Suggested Pad Layout



- Note:
- Controlling dimension: in millimeters.
 - General tolerance: ± 0.05 mm.
 - The pad layout is for reference purposes only.

SOT-23-6L Tape and Reel

SOT-23-6L Embossed Carrier Tape

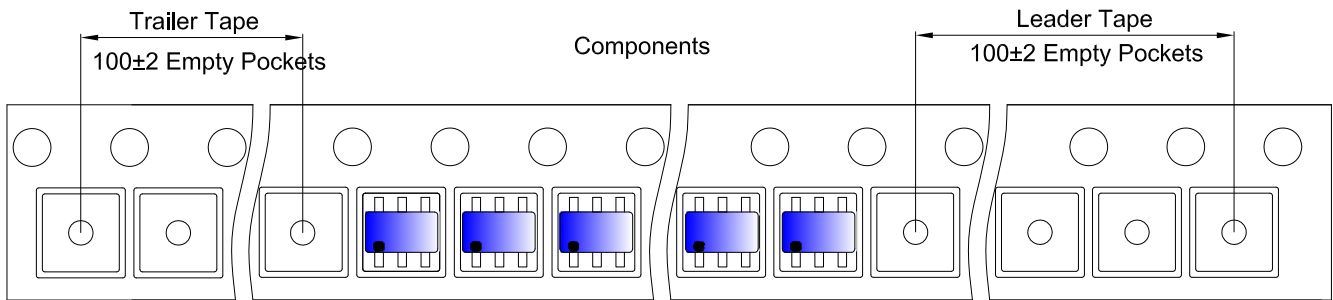


Packaging Description:

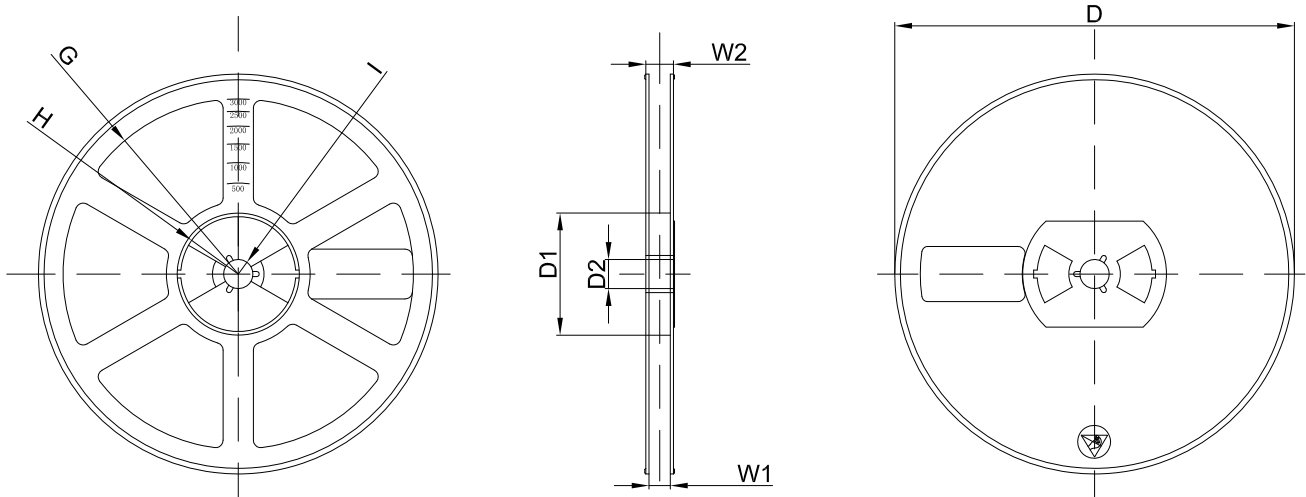
SOT-23-6L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 18.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOT-23-6L	3.17	3.23	1.37	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-6L Tape Leader and Trailer



SOT-23-6L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	

Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C

