JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

SOT-23-6L Plastic-Encapsulate MOSFETS

CJL6602A P-channel and N-channel Complementary MOSFETS

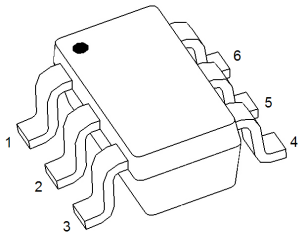
P-channel

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
-30V	79mΩ@-10V	-2.3A
	118mΩ@-4.5V	

N-channel

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
30V	39mΩ@10V	3.4A
	56mΩ@4.5V	

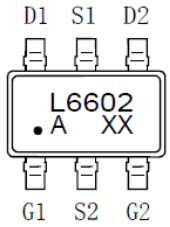
SOT-23-6L



GENERAL DESCRIPTION

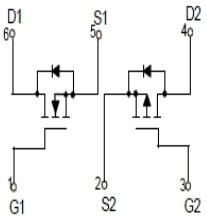
The CJL6602A uses advanced trench technology to provide excellent $R_{DS(on)}$ and low gate charge. The complementary MOSFETS form a high-speed power inverter and suitable for a multitude of applications.

MARKING



L6602A=Device code
Solid point=Pin1 positioning point
XX=Date Code

Equivalent Circuit



Maximum Ratings (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value		Unit
		N-channel	P-channel	
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	±12	±12	V
Continuous Drain Current(1)	I_D	3.4	-2.3	A
Pulsed Drain Current (2)	I_{DM}	30	-30	A
Power Dissipation	P_D	0.83	0.83	W
Thermal Resistance from Junction to Ambient(1)	$R_{\theta JA}$	150	150	℃/W
Operation Junction and Storage Temperature Range	T_J,T_{stg}	-55~+150	-55~+150	℃

1.The value of $R_{\theta JA}$ is measured with the device one-side active only, mounted on 1 in^2 FR-4 board with 2oz. single-sided Copper, in a still air environment with TA =25°C.

2.Repetitive rating,pulse with limited by junction temperature.

MOSFET ELECTRICAL CHARACTERISTICS

N-channel MOSFET Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static characteristics						
Drain-source breakdown voltage	$V_{(BR)\,DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =24V,V_{GS} = 0V			1	μA
Gate-source leakage current (note1)	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
Drain-source on-resistance (note1)	$R_{DS(on)}$	V_{GS} =10V, I_D =3A		30	39	mΩ
		V_{GS} =4.5V, I_D =3A		43	56	mΩ
Forward tranconductance (note1)	g_{FS}	V_{DS} =5V, I_D =3A	3			S
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.8	3.0	V
Diode forward voltage (note1)	V_{SD}	I_S=1A,V_{GS}=0V			1	V
Dynamic characteristics (note2)						
Input capacitance	C_{iss}	V_{GS} =0V,V_{DS} =15V ,f =1MHz		302		pF
Output capacitance	C_{oss}			39		pF
Reverse transfer capacitance	C_{rss}			28		pF
Gate resistance	R_g	V_{GS} =0V,V_{DS} =0V,f =1MHz		6		Ω
Switching Characteristics(note2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=15V, R_L=5Ω,R_{GEN}=6Ω		0.8		ns
Turn-on rise time	t_r			2		ns
Turn-off delay time	$t_{d(off)}$			6.8		ns
Turn-off fall time	t_f			3		ns
Total gate charge	Q_g	V_{GS}=6V, V_{DD}=10V, I_D=2A		4.3		nC
Gate-source charge	Q_{gs}			1.1		nC
Gate-drain charge	Q_{gd}			1.3		nC

Notes : 1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.

2. Guaranteed by design, not subject to production testing.

MOSFET ELECTRICAL CHARACTERISTICS

P-channel MOSFET Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static characteristics						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V,V_{GS} = 0V			-1	μA
Gate-source leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
Drain-source on-resistance (note1)	$R_{DS(on)}$	V_{GS} =-10V, I_D =-2.3A		61	79	mΩ
		V_{GS} =-4.5V, I_D =-2A		91	118	mΩ
Forward tranconductance (note1)	g_{FS}	V_{DS} =-5V, I_D =-2.3A	3			S
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.6	-3.0	V
Diode forward voltage (note1)	V_{DS}	I_S=-1A,V_{GS}=0V			-1	V
Dynamic characteristics (note2)						
Input capacitance	C_{iss}	V_{GS} =0V,V_{DS} =-15V,f =1MHz		291		pF
Output capacitance	C_{oss}			44		pF
Reverse transfer capacitance	C_{rss}			37		pF
Gate resistance	R_g	V_{GS} =0V,V_{DS} =0V,f =1MHz		10		Ω
Switching Characteristics (note2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=-10V,V_{DD}=-15V, R_L=6Ω,R_{GEN}=6Ω		13		ns
Turn-on rise time	t_r			10		ns
Turn-off delay time	$t_{d(off)}$			28		ns
Turn-off fall time	t_f			13		ns
Total gate charge	Q_g	V_{GS}=-6V, V_{DD}=-10V, I_D=-2A		4.5		nC
Gate-source charge	Q_{gs}			1		nC
Gate-drain charge	Q_{gd}			1.4		nC

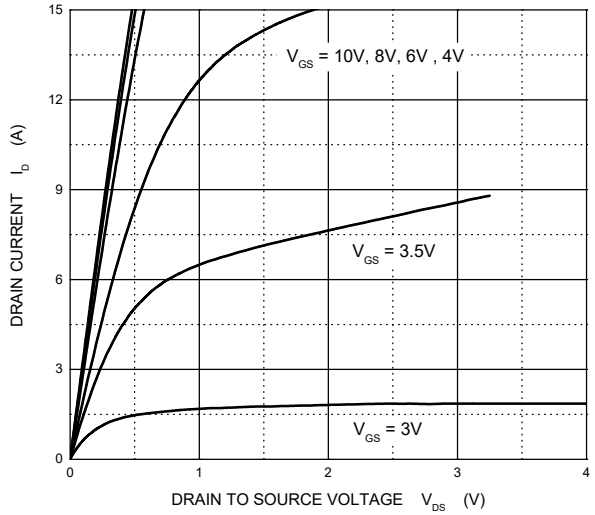
Notes : 1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.

2. Guaranteed by design, not subject to production testing.

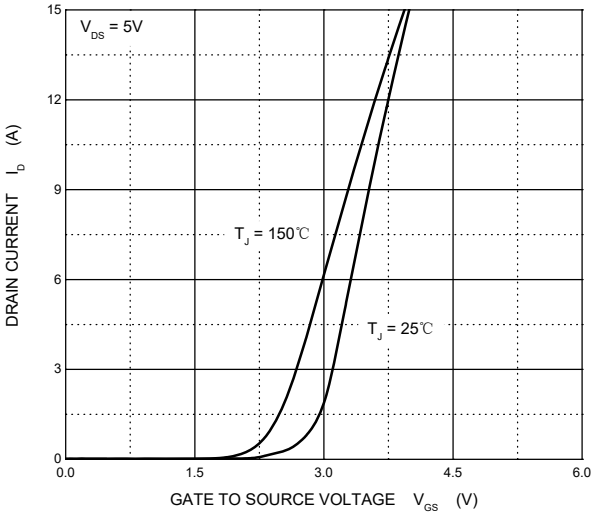
Typical Characteristics

N-Channel-MOS

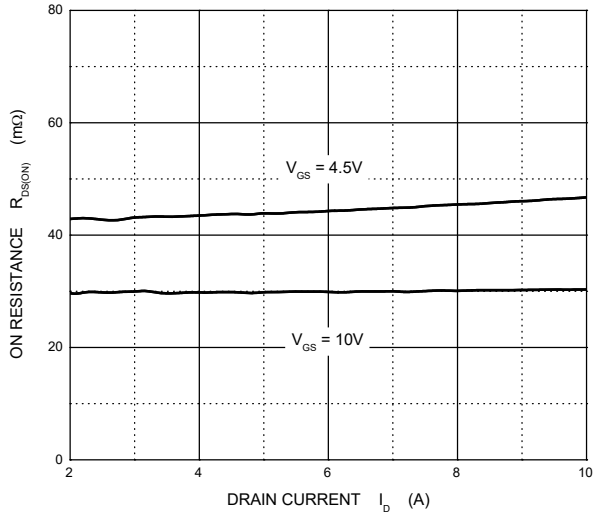
Output Characteristics



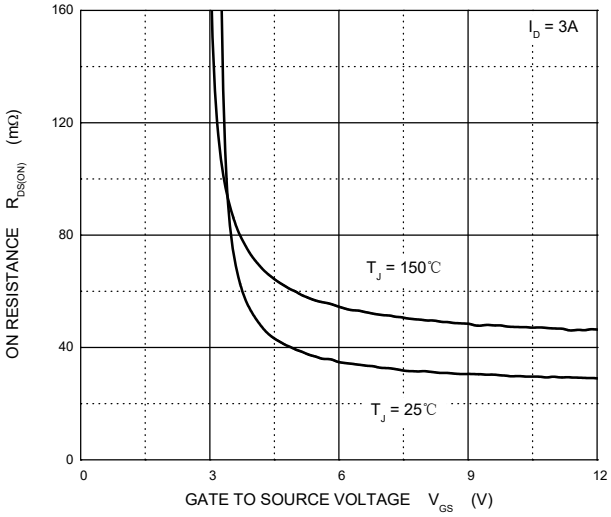
Transfer Characteristics



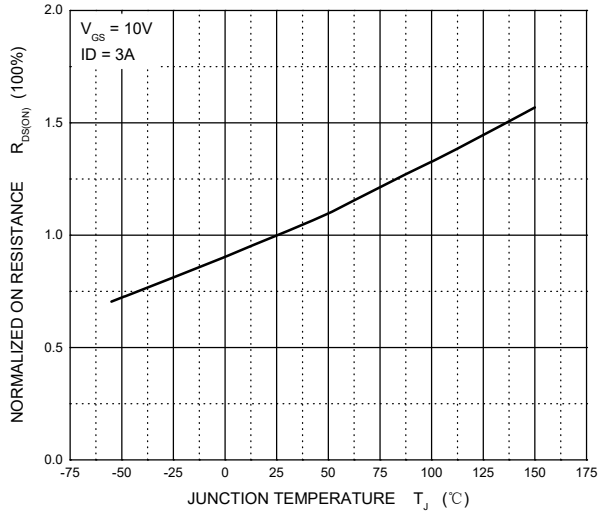
On Resistance vs. Drain Current



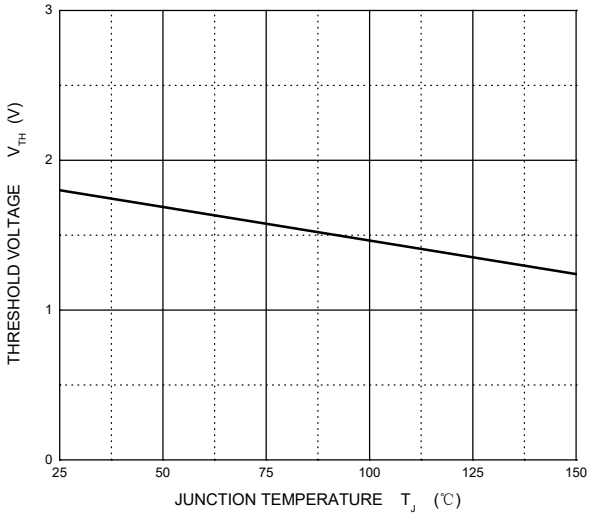
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature



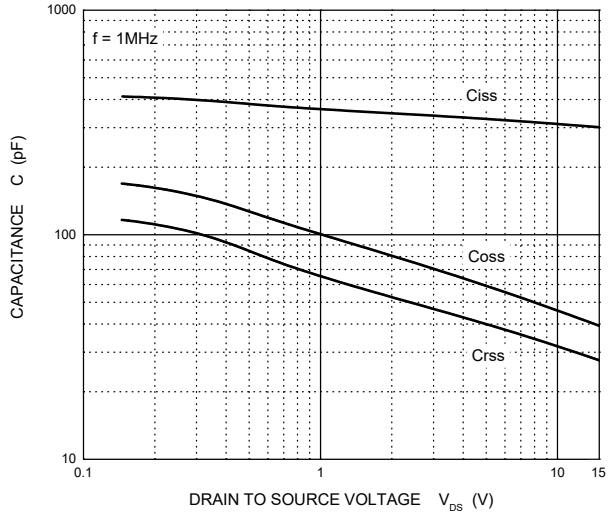
Gate-Source Threshold Voltage



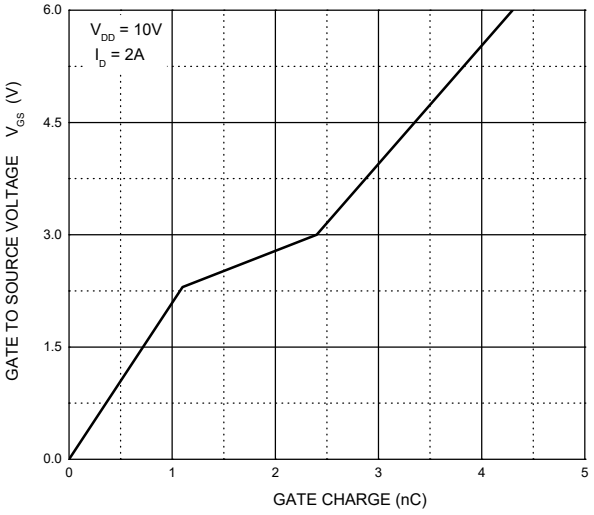
Typical Characteristics

N-Channel-MOS

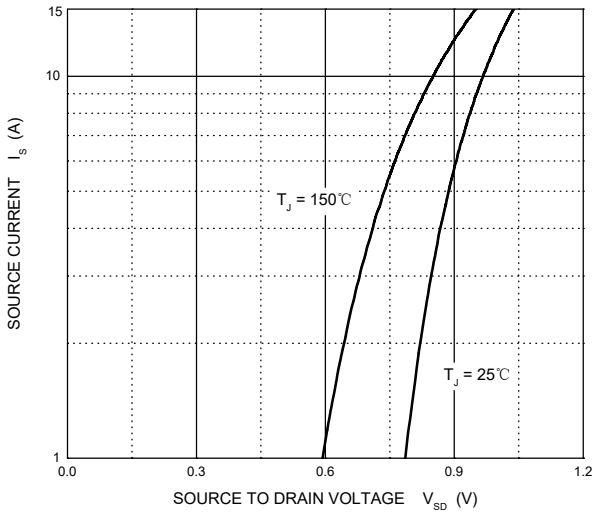
Typical Capacitances



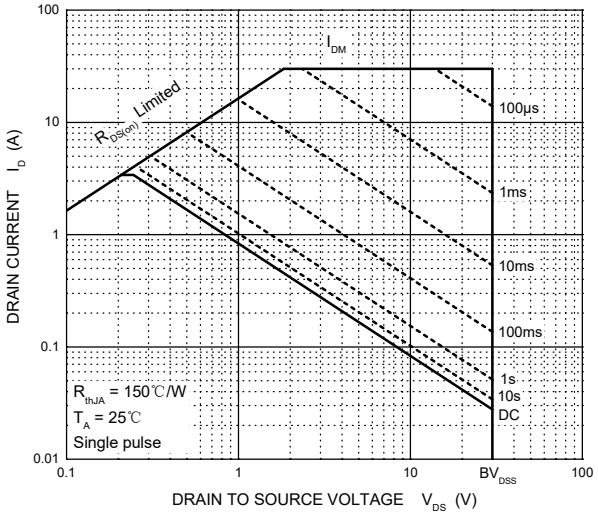
Gate Charge



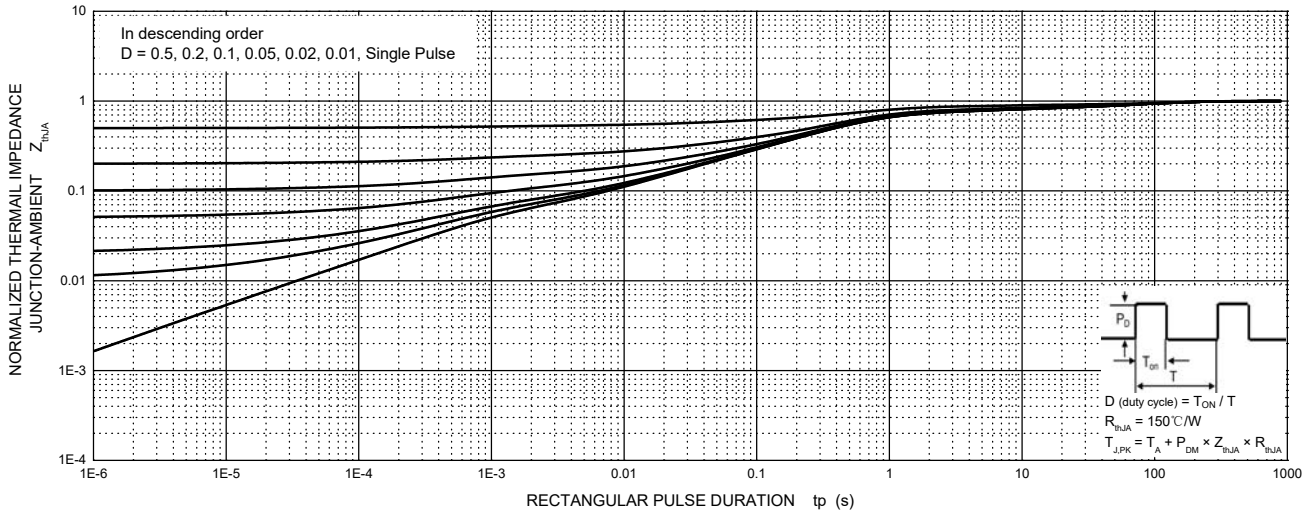
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area



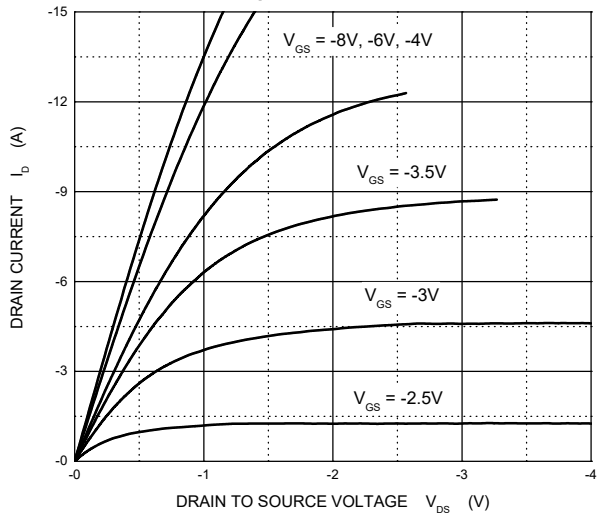
Transient Thermal Impedance, Junction-Case



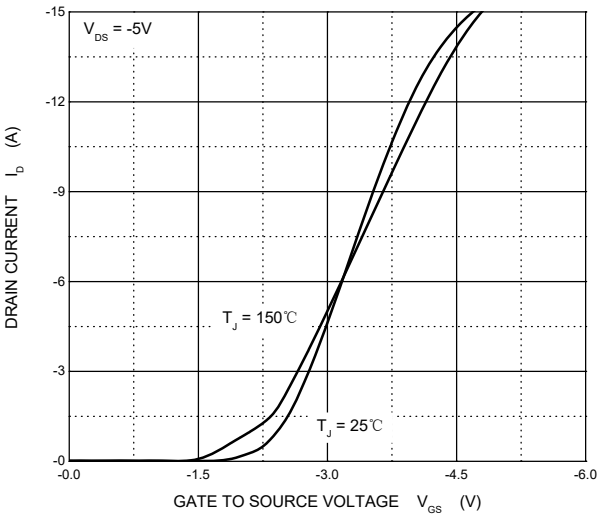
Typical Characteristics

P-Channel-MOS

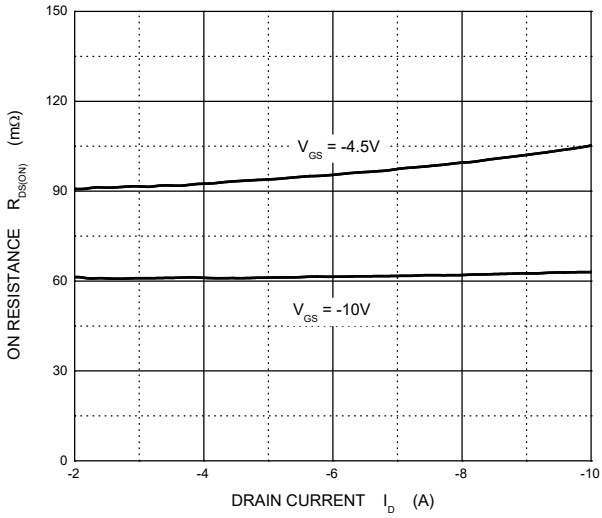
Output Characteristics



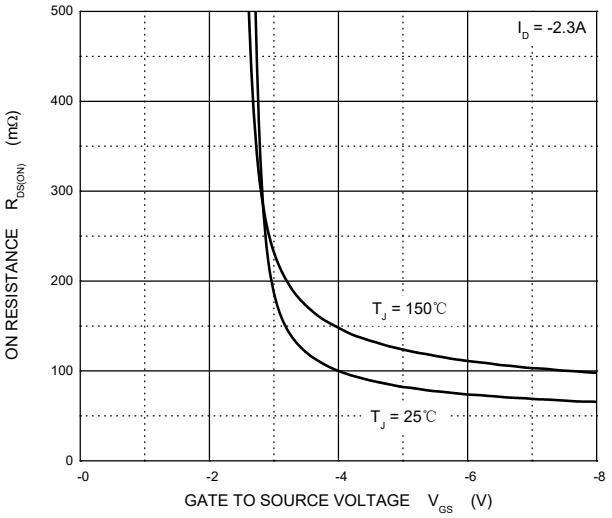
Transfer Characteristics



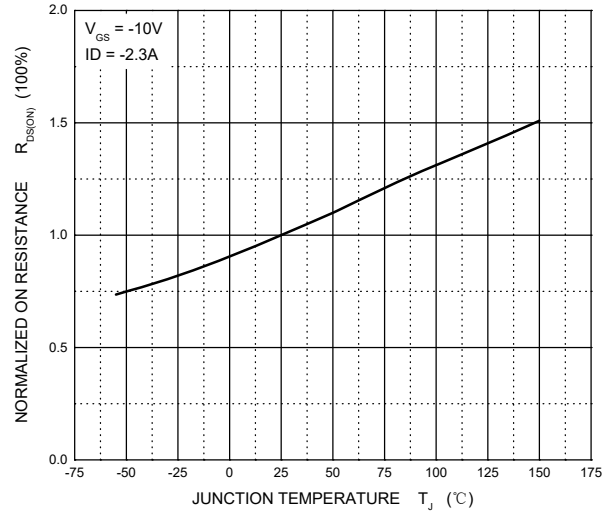
On Resistance vs. Drain Current



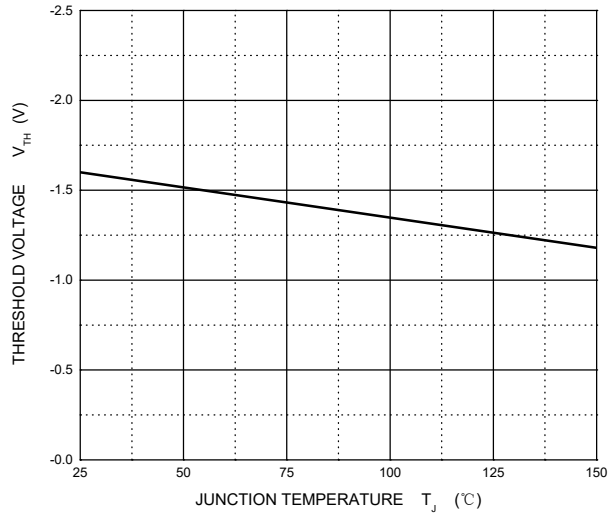
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature



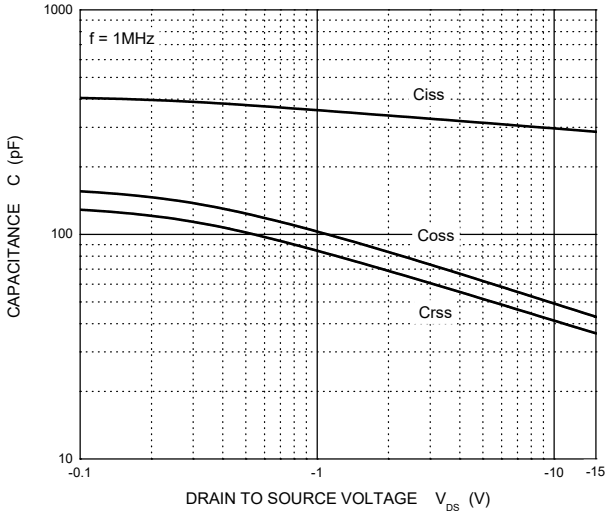
Gate-Source Threshold Voltage



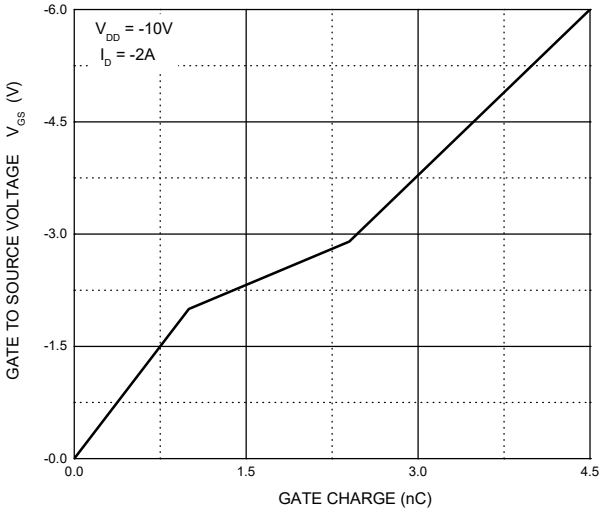
Typical Characteristics

P-Channel-MOS

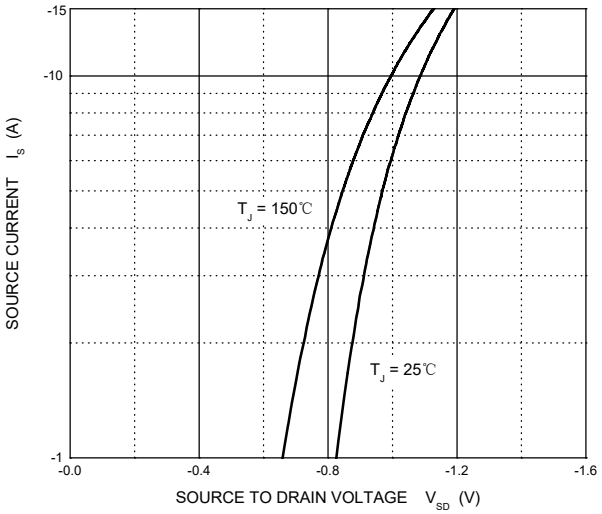
Typical Capacitances



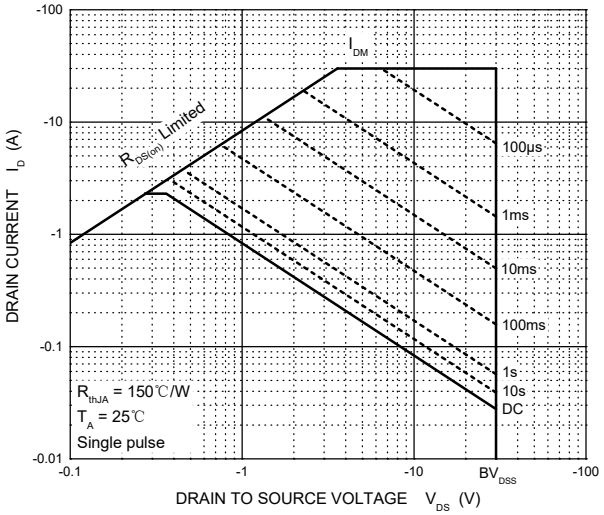
Gate Charge



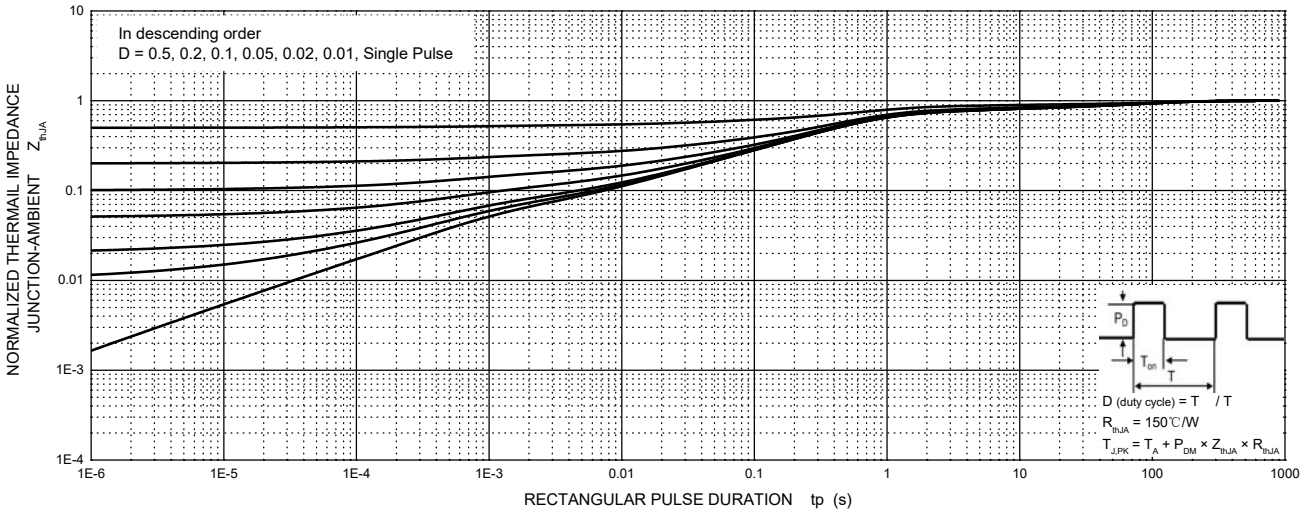
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area

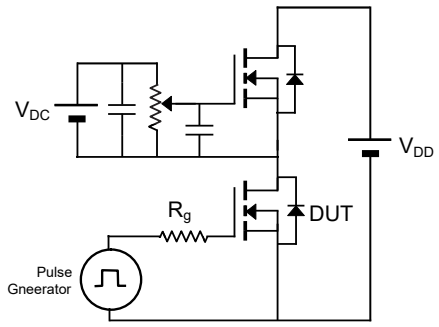


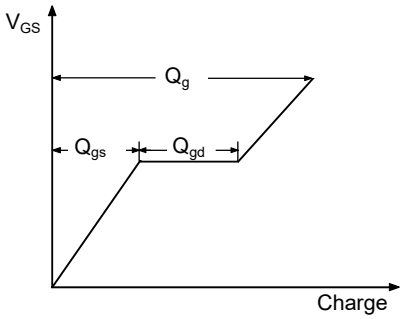
Transient Thermal Impedance, Junction-Case



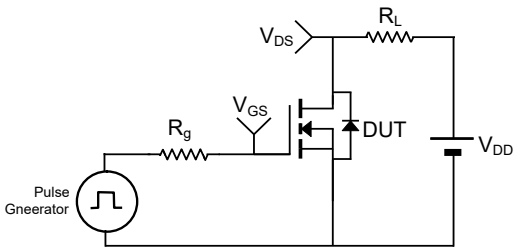
TEST CIRCUIT AND WAVEFOMRS

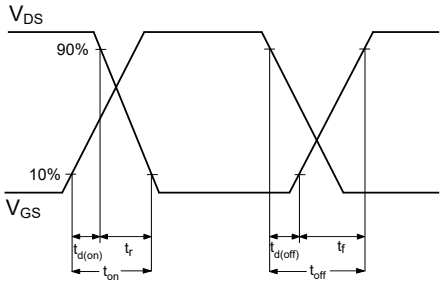
Gate Charge



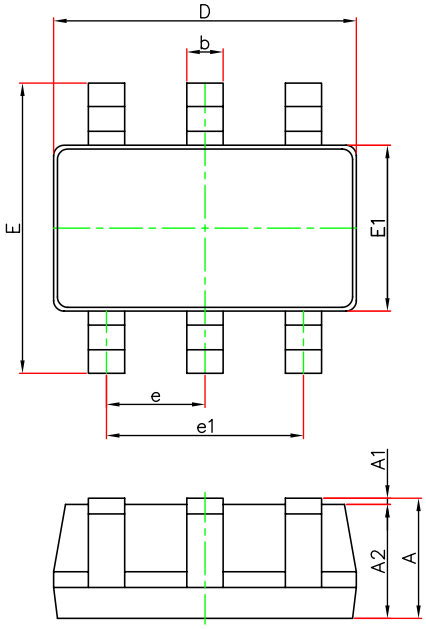


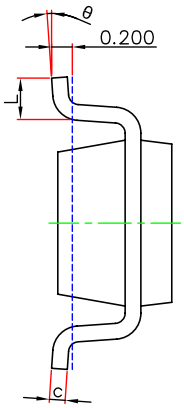
Resistive Load Switching Time





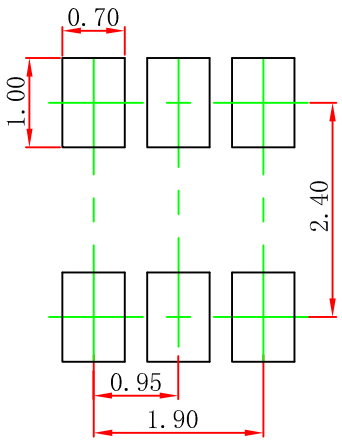
SOT-23-6L Package Outline Dimensions





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

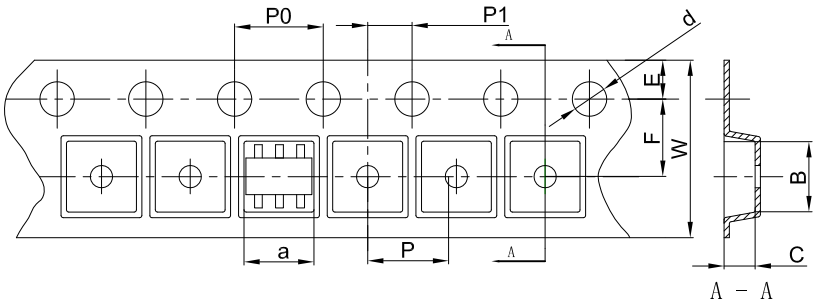
SOT-23-6L Suggested Pad Layout



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

SOT-23-6L Tape and Reel

SOT-23-6L Embossed Carrier Tape

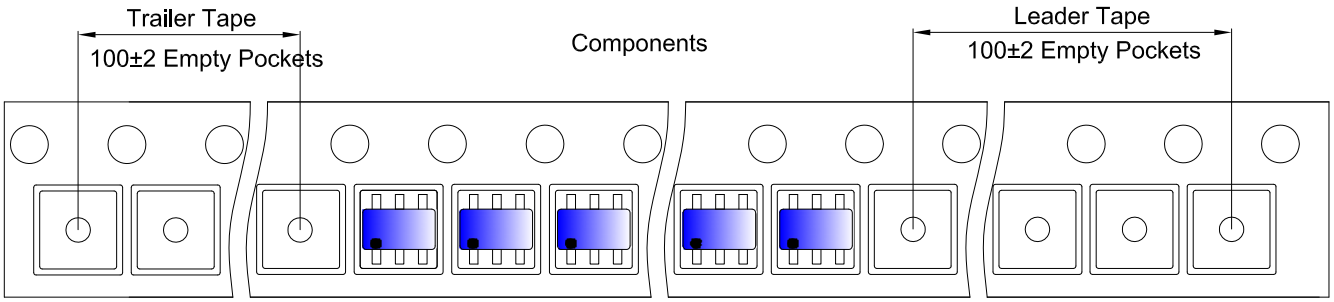


Packaging Description:

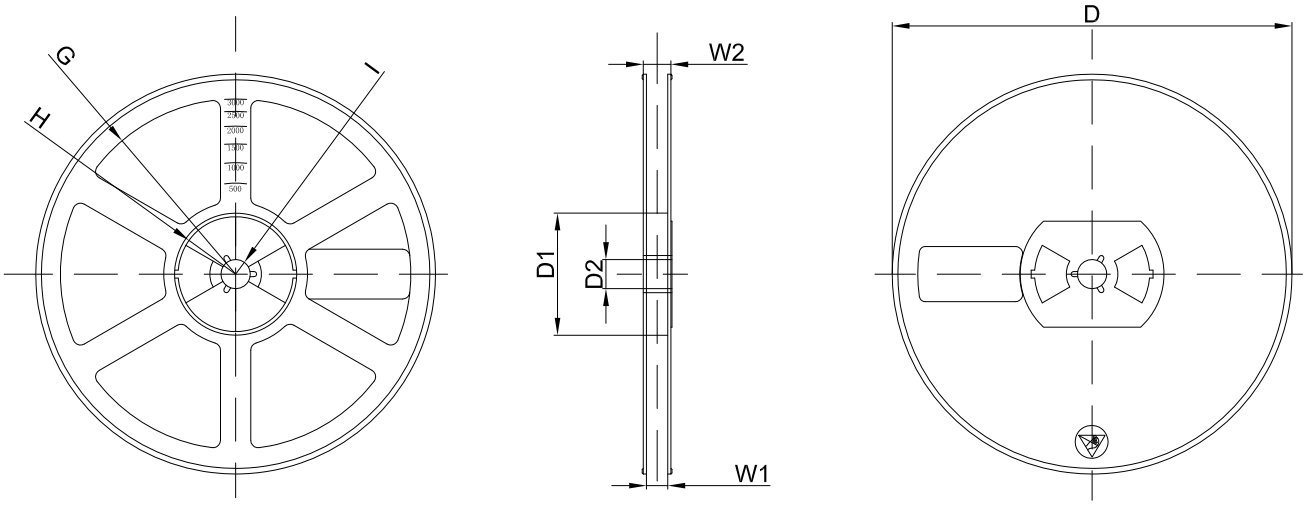
SOT-23-6L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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	3.23	3.17	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	