TLT6354SL

P-Channel Enhancement Mode Power MOSFET

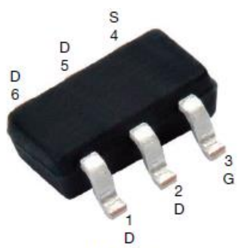
- **Features**

V_{DS} = -60V,
I_D = -3.5A
$R_{DS(ON)}$ @V_{GS}= -10V, TYP 90mΩ
$R_{DS(ON)}$ @V_{GS}= -4.5V, TYP 120mΩ

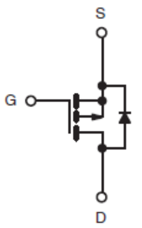
- **General Description**

• DC/DC Converter
• Load switches

- **Pin Configurations**



Top View



P-Channel MOSFET

SOT23-6L

- **Absolute Maximum Ratings** @T_A=25℃ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	-60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current (Continuous) *AC	T_A=25°C	I_D	-3.5	A
	T_A=70°C		-2.8	
Drain Current (Pulse) *B(t=100us)		I_{DM}	-20	A
Power Dissipation	T_A=25°C	P_D	2	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	℃

- **Thermal Resistance Ratings**

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	t ≤ 10 s	R_{thJA}	40	62.5	°C/W
Maximum Junction-to-Ambient	Steady State	R_{thJA}		110	

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- **Electrical Characteristics** @T_A=25℃ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D= -250 μA	-60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -60 V, V_{GS} = 0V	--	--	-1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_{DS}= -250 μA	-1	--	-3	V
Gate Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -2A	--	90	110	mΩ
	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -1A	--	120	150	mΩ
Forward Transconductance	g_{FS}	V_{DS}= -30V, I_D= -3.5A	--	11	--	S
Diode Forward Voltage	V_{SD}	I_{SD}= -2.8A , V_{GS}=0V	--	--	-1.2	V
Diode Forward Current	I_S	TC =25°C	--	--	-3.5	A
Switching						
Total Gate Charge	Q_g	V_{DS}=-30V,I_D=-3.5A, V_{GS}=-4.5V	--	10.1	--	nC
Gate-Source Charge	Q_{gs}		--	3.3	--	nC
Gate-Drain Charge	Q_{gd}		--	3.9	--	nC
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-30V ,R_L=10.7Ω V_{GEN}=-10V, R_g=1Ω I_D=-2.8A	--	8	--	ns
Turn-on Rise Time	t_r		--	6	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	35	--	ns
Turn-Off Fall Time	t_f		--	16	--	ns
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=-30V,V_{GS}=0V, f=1.0MHz	--	832	--	pF
Output Capacitance	C_{oss}		--	88	--	pF
Reverse Transfer Capacitance	C_{rss}		--	63	--	pF

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the t≤ 10s junction to ambient thermal resistance rating.

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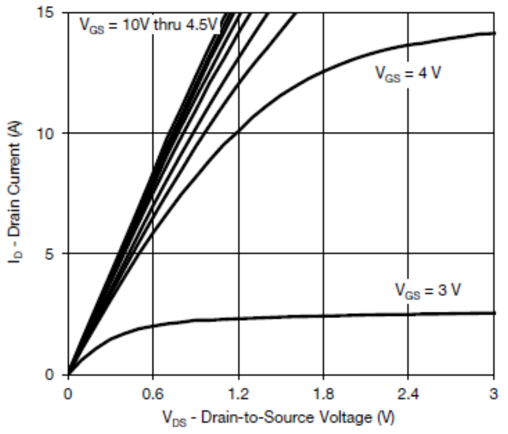
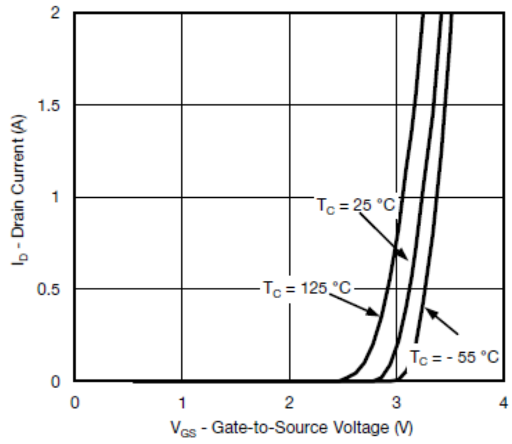
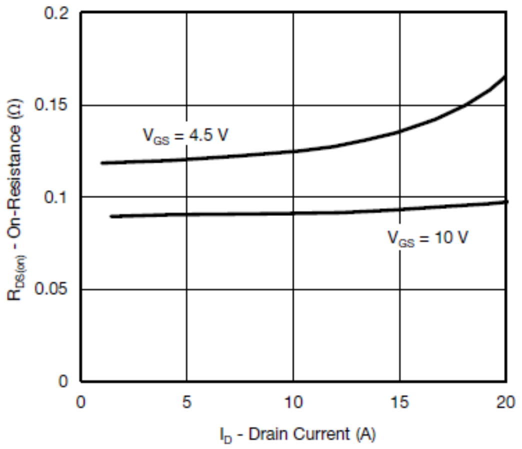
- **Typical Performance Characteristics（(TJ = 25 °C, unless otherwise noted)）**



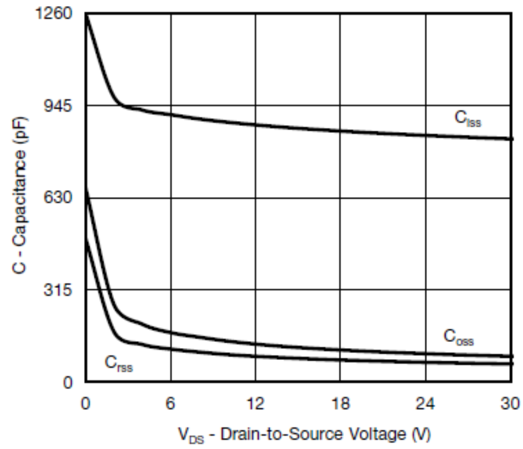
Output Characteristics



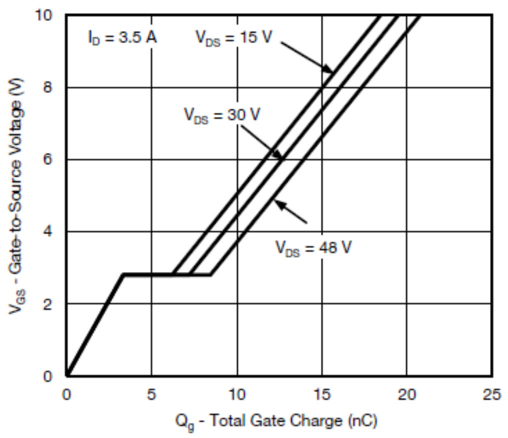
Transfer Characteristics



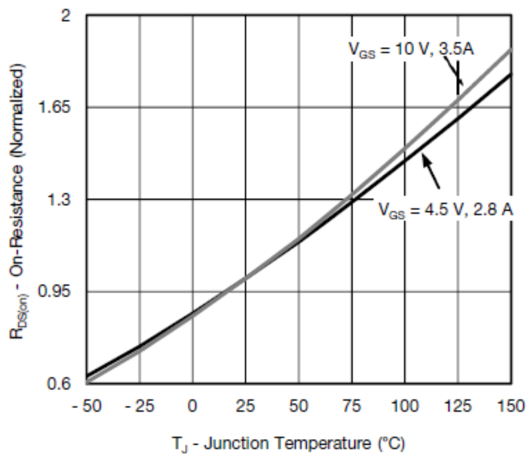
On-Resistance vs. Drain Current



Capacitance



Gate Charge



On-Resistance vs. Junction Temperature

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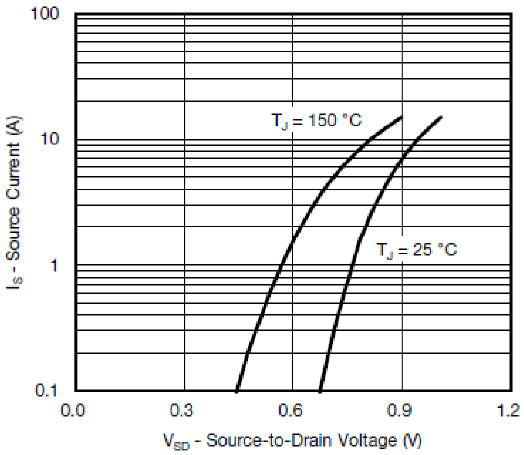
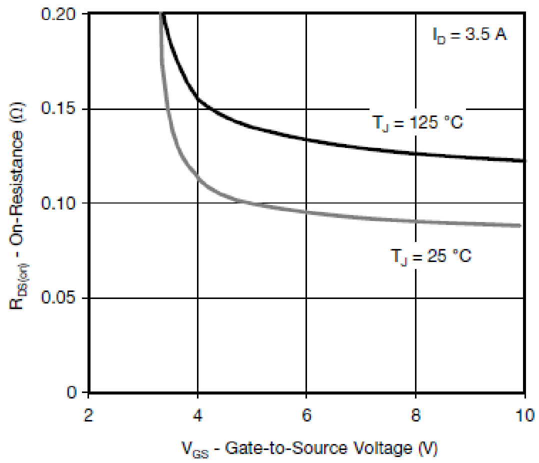
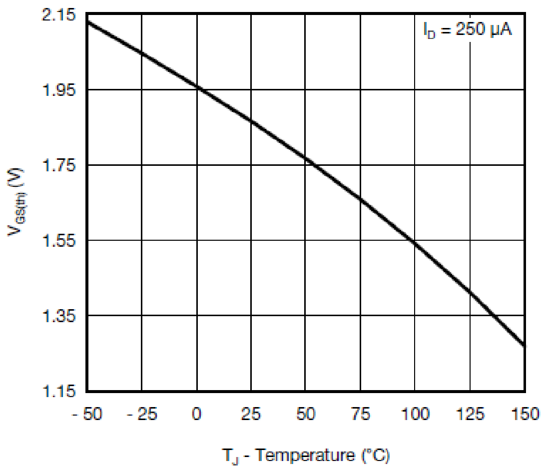


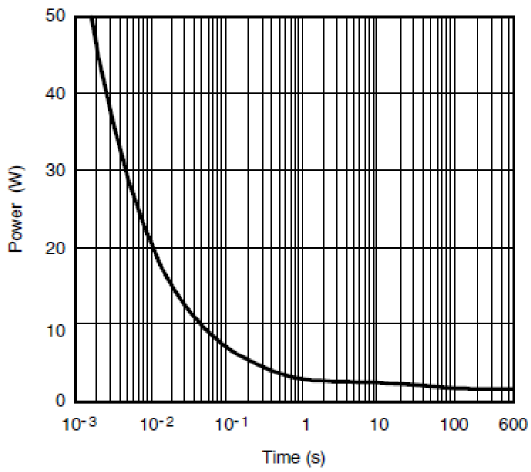
Source-Drain Diode Forward Voltage



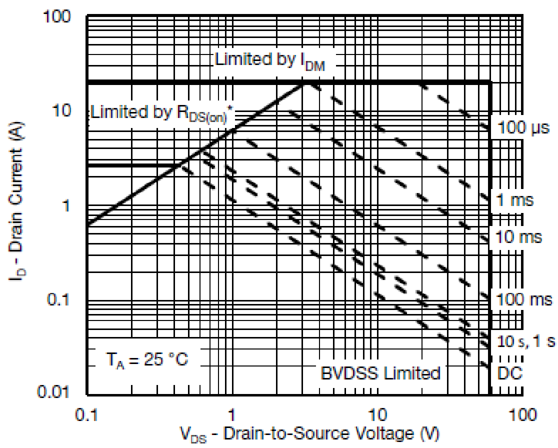
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power, Junction-to-Ambient



* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

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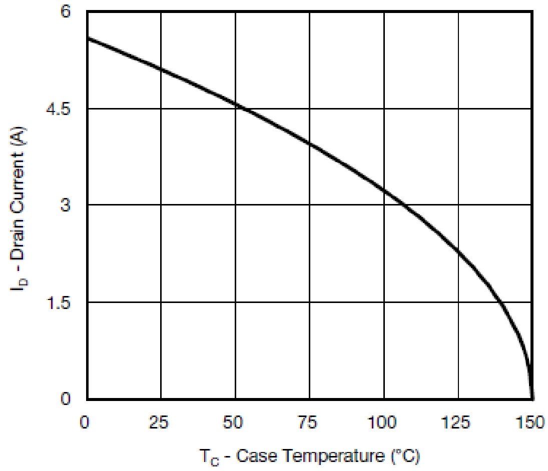
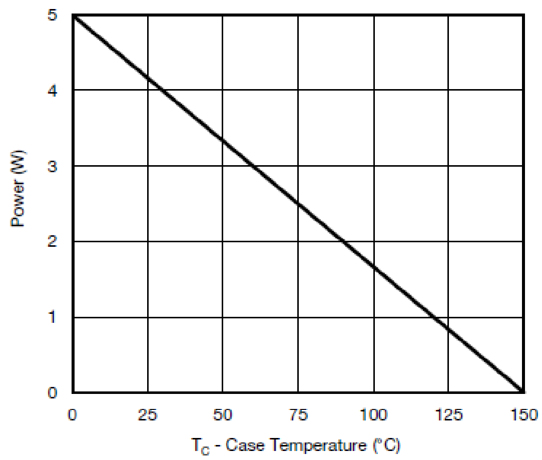
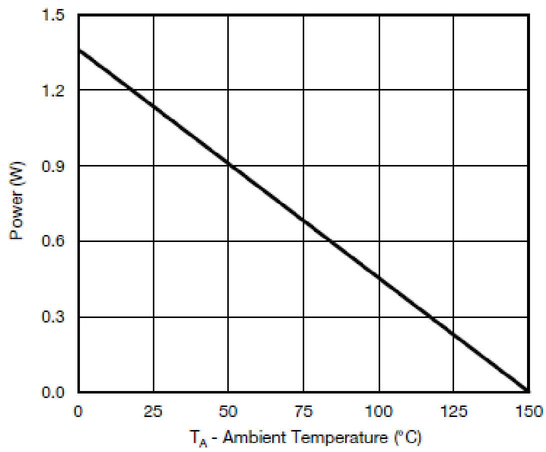


Current Derating*



Power, Junction-to-Foot



Power Derating, Junction-to-Ambient

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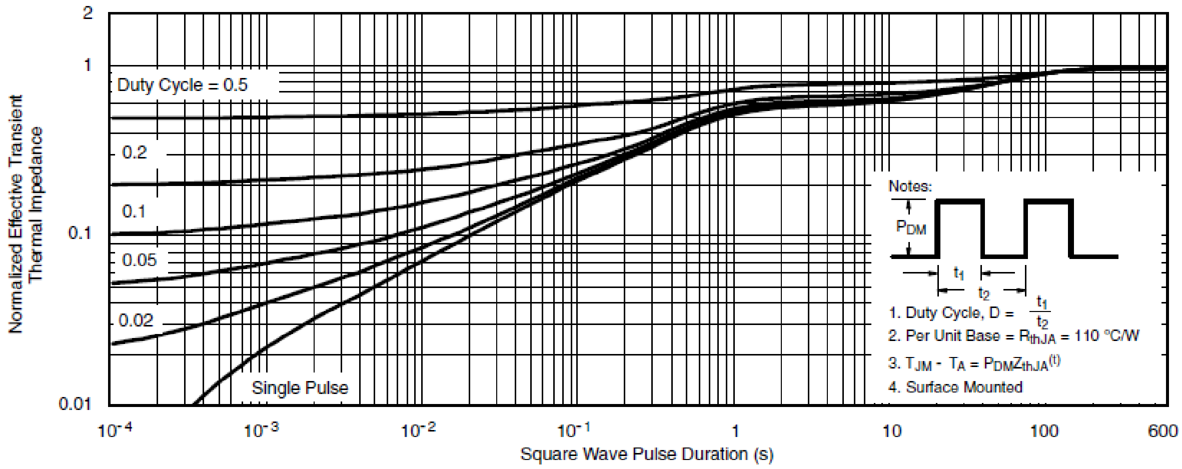
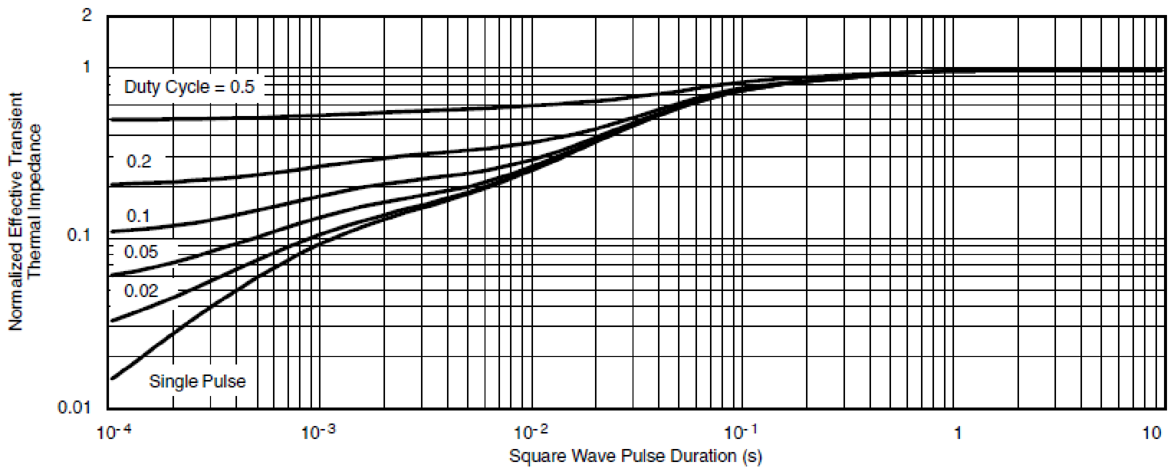


Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

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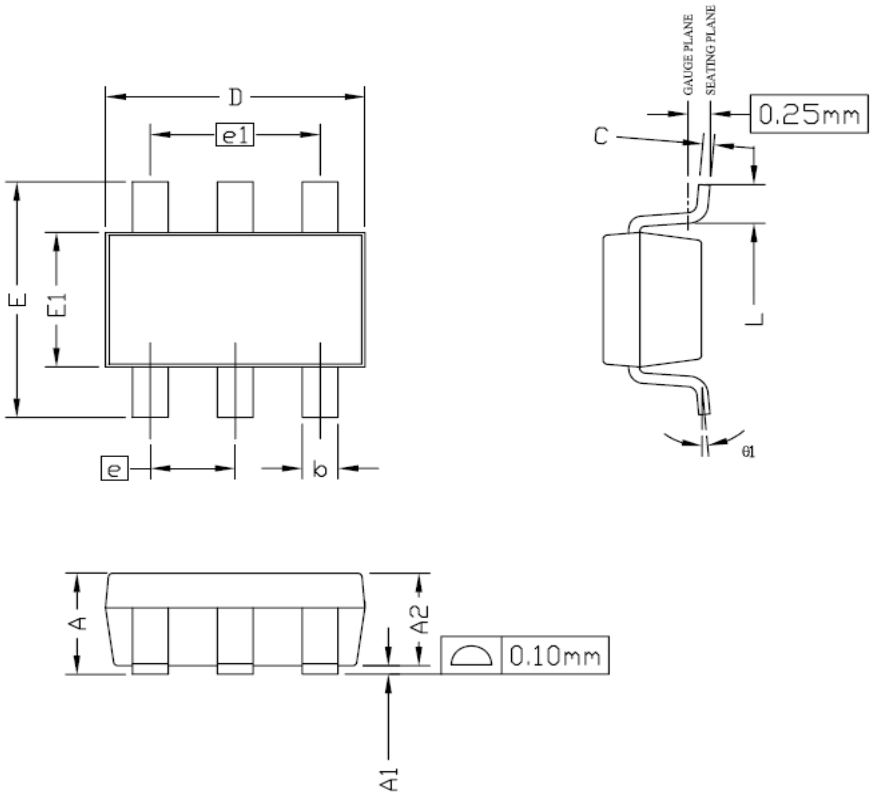
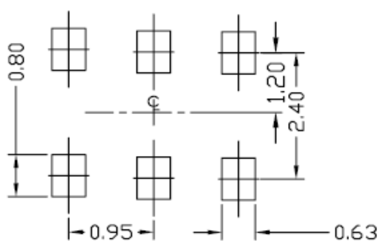
- **Package Information**

SOT23_6L PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



UNIT: mm

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	——	1.25	0.035	——	0.049
A1	0.00	——	0.15	0.00	——	0.006
A2	0.70	1.10	1.20	0.028	0.043	0.047
b	0.30	0.40	0.50	0.012	0.016	0.020
C	0.08	0.13	0.20	0.003	0.005	0.008
D	2.70	2.90	3.10	0.106	0.114	0.122
E	2.50	2.80	3.10	0.098	0.110	0.122
E1	1.50	1.60	1.70	0.059	0.063	0.067
e	0.95 BSC.			0.037BSC.		
e1	1.90 BSC.			0.075 BSC.		
L	0.30	——	0.60	0.012	——	0.024
θ1	0°	——	8°	0°	——	8°

NOTE
1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
   MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 5 MILS EACH.
2. DIMENSION "L" IS MEASURED IN GAGE PLANE.
3. TOLERANCE ±0.100 mm(4 mil) UNLESS OTHERWISE SPECIFIED.
4. FOLLOWED FROM JEDEC MO-178C & MO-193C.
5. CONTROLLING DIMENSIONS IS MILLIMETER.
   CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.