

Product Summary

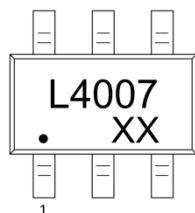
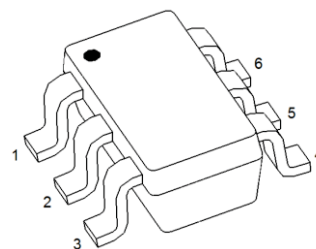
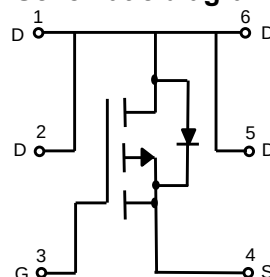
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-40V	28m Ω @-10V	-7A
	38m Ω @-4.5V	

Feature

- High Cell Density Trenched P-ch MOSFETs
- Excellent $R_{DS(on)}$
- Low Gate Charge

Application

- Power Switching Application
- Hard Switched and High Frequency Circuits
- DC-DC Converter

MARKING:

SOT-23-6L

Schematic diagram

ABSOLUTE MAXIMUM RATINGS ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

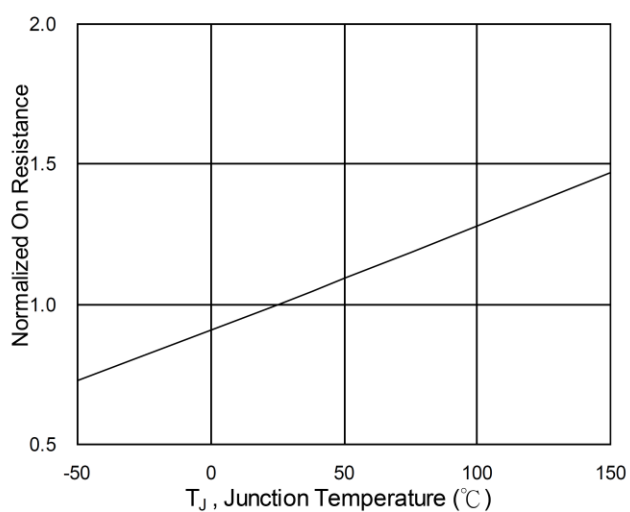
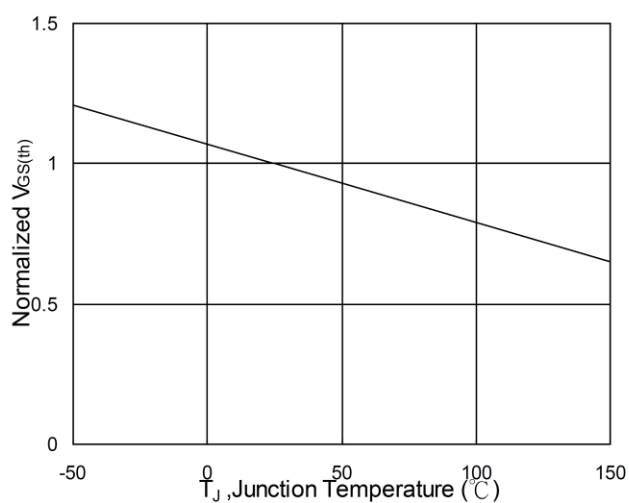
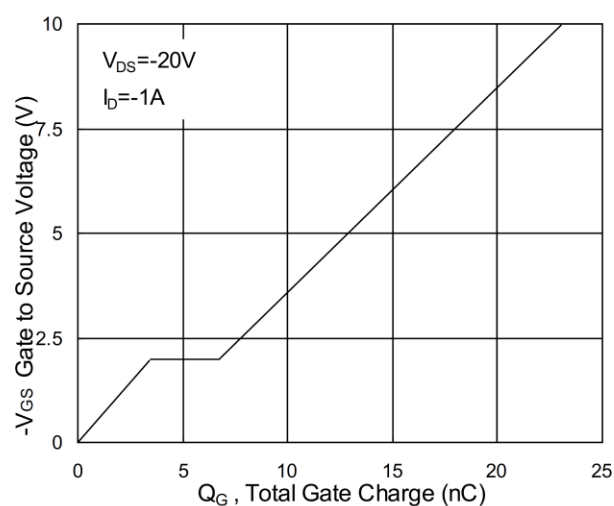
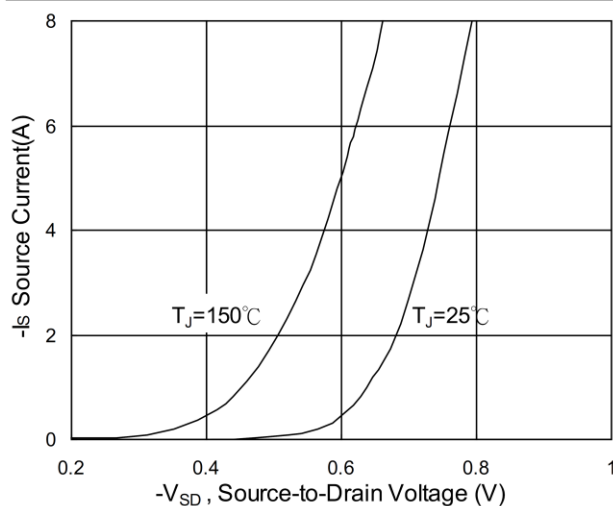
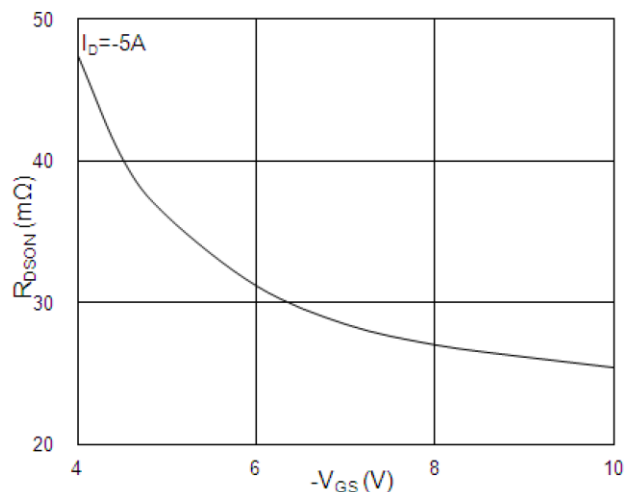
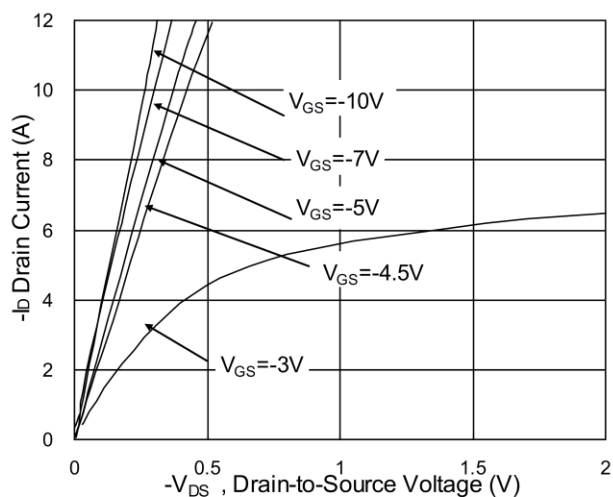
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	-7	A
Pulsed Drain Current ²	I_{DM}	-28	A
Single Pulse Avalanche Energy ³	E_{AS}	40	mJ
Avalanche Current	I_{AS}	-27	A
Power Dissipation ⁴	P_D	1.1	W
Thermal Resistance from Junction to Ambient ¹	$R_{\theta JA}$	110	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-40			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-32V,V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.2	-1.5	-2.5	V
Drain-source on-resistance ²	R _{DS(on)}	V _{GS} =-10V, I _D =-5A		28	35	mΩ
		V _{GS} =-4.5V, I _D =-4A		38	50	
Forward tranconductance	g _{FS}	V _{DS} =-5V, I _D =-8A		12		S
Dynamic characteristics						
Input capacitance	C _{iss}	V _{DS} =-15V,V _{GS} =0V,f =1MHz		1415		pF
Output capacitance	C _{oss}			134		
Reverse transfer capacitance	C _{rss}			102		
Switching Characteristics						
Total gate charge@-4.5V	Q _g	V _{DS} =-15V,V _{GS} =-4.5V,I _D =-1A		11.5		nC
Gate-source charge	Q _{gs}			3.5		
Gate-drain charge	Q _{gd}			3.3		
Turn-on delay time	t _{d(on)}	V _{DD} =-15V , V _{GS} =-10V , R _G =3.3 Ω, ID=-1A		22		ns
Turn-on rise time	t _r			15.7		
Turn-off delay time	t _{d(off)}			59		
Turn-off fall time	t _f			5.5		
Diode Characteristics						
Continuous Source Current ^{1,5}	I _S	V _G =V _D =0V , Force Current			-7	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V , I _S =-1A , T _J =25℃			-1.2	V

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
3. The E_{AS} data shows Max. rating. The test condition is V_{DD} = -25V, V_{GS} = -10V, L = 0.1mH, I_{AS} = -27A
4. The power dissipation is limited by 150°C junction temperature
5. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

Typical Electrical and Thermal Characteristics


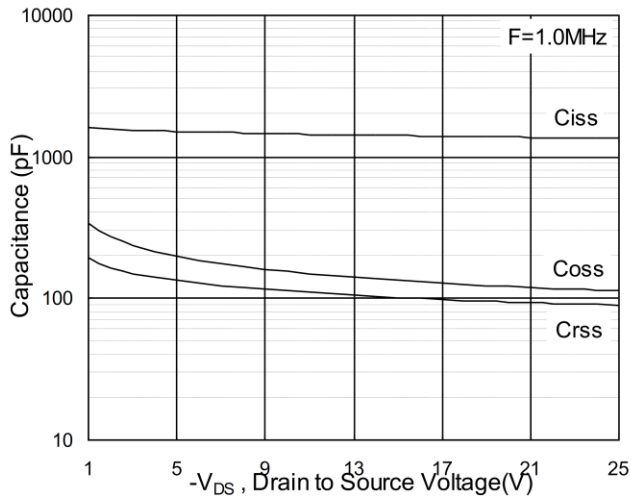


Fig.7 Capacitance

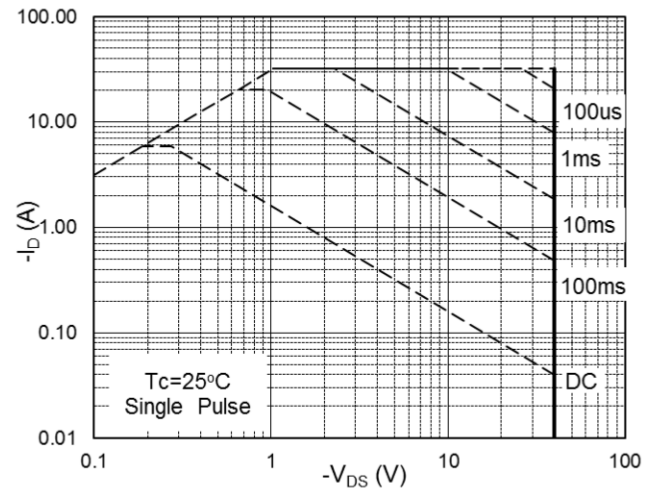


Fig.8 Safe Operating Area

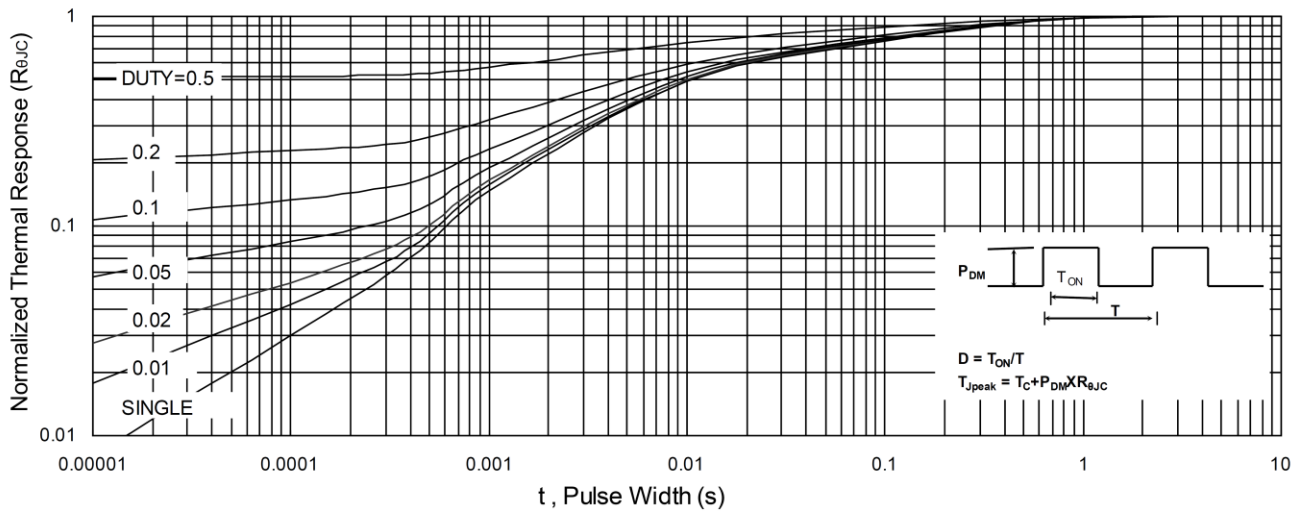
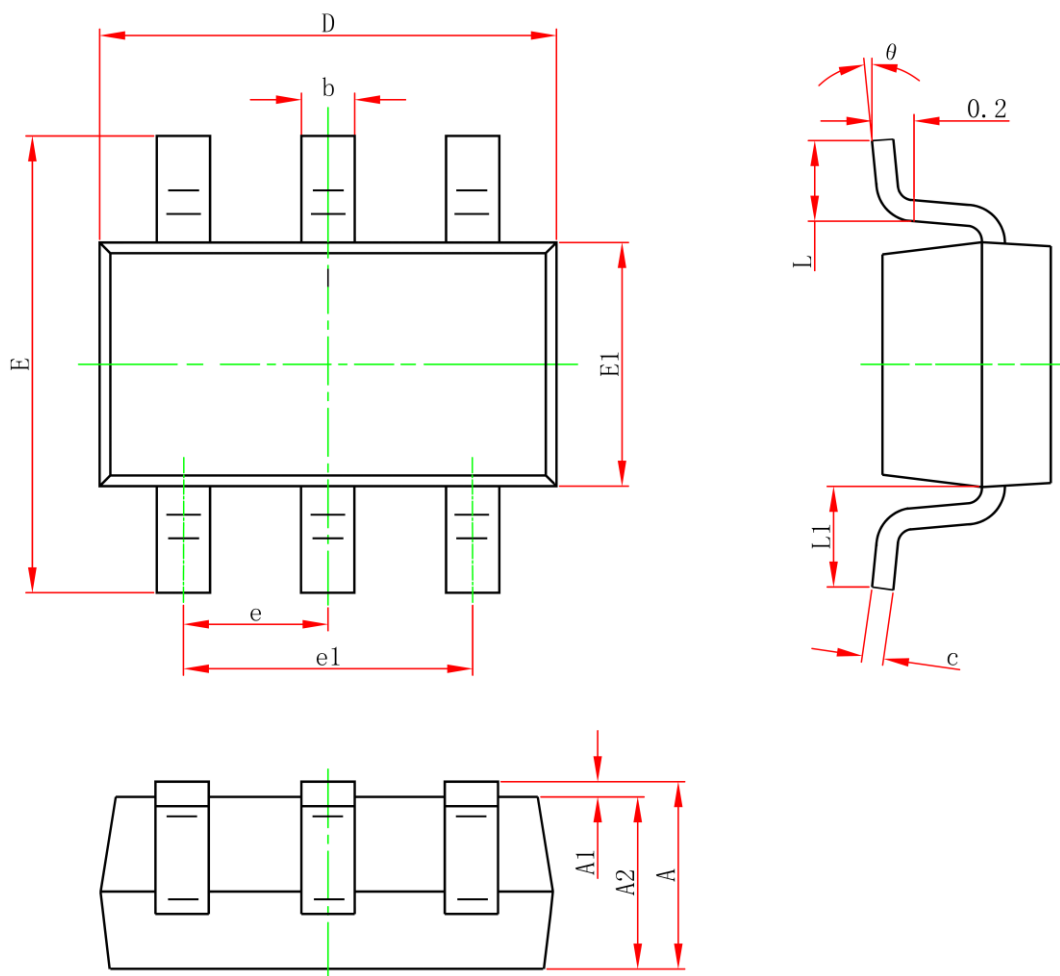


Fig.9 Normalized Maximum Transient Thermal Impedance

SOT-23-6L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0	0.150	0.000	0.006
A2	1.050	1.250	0.041	0.049
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
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L1	0.600REF		0.024REF	
θ	0°	8°	0°	8°