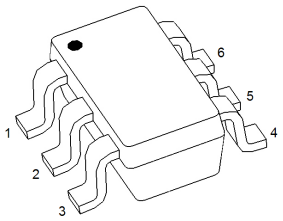
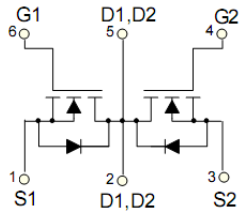
SL8820 Dual N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D Max
20V	0.014Ω @ 4.5V	6.0A
	0.018Ω @ 2.5V	

SOT-23-6



Equivalent Circuit



FEATURE

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$
- Low Gate Charge
- High Power and Current Handing Capability
- Surface Mount Package

APPLICATION

- Battery Protection
- Load Switch
- Power Management

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	6	A
Pulsed Drain Current (note 1)	I_{DM}	25	A
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	100	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~+150	℃
Lead Temperature for Soldering Purposes(1/8'' from case for 10 s)	T_L	260	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a =25 ℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERICTISCS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =19V,V_{GS} = 0V			100	nA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
Gate threshold voltage (note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.5	0.7	1.0	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =6A	9.0	12.5	14	mΩ
		V_{GS} =2.5V, I_D =5.5A	12.0	15.5	18	mΩ
Forward tranconductance (note 3)	g_{FS}	V_{DS} =5V, I_D =6A		10		S
Diode forward voltage (note 3)	V_{SD}	I_S=1.50A, V_{GS} = 0V			1.0	V
DYNAMIC CHARACTERICTISCS (note4)						
Input Capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz		615		pF
Output Capacitance	C_{oss}			150		pF
Reverse Transfer Capacitance	C_{rss}			120		pF
SWITCHING CHARACTERICTISCS (note 4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=5V, V_{DS}=10V, R_L=1.4Ω, R_{GEN}=3Ω		7.2		ns
Turn-on rise time	t_r			13		ns
Turn-off delay time	$t_{d(off)}$			29		ns
Turn-off fall time	t_f			11		ns
Total Gate Charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D=6A		12		nC
Gate-Source Charge	Q_{gs}			1.2		nC
Gate-Drain Charge	Q_{gd}			3.0		nC

Notes :

1.Repetitive rating：Pluse width limited by maximum junction temperature

2.Surface Mounted on FR4 board，t≤10 sec.

3. Pulse test : Pulse width≤300μs, duty cycle≤2%.

4. Guaranteed by design, not subject to production.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

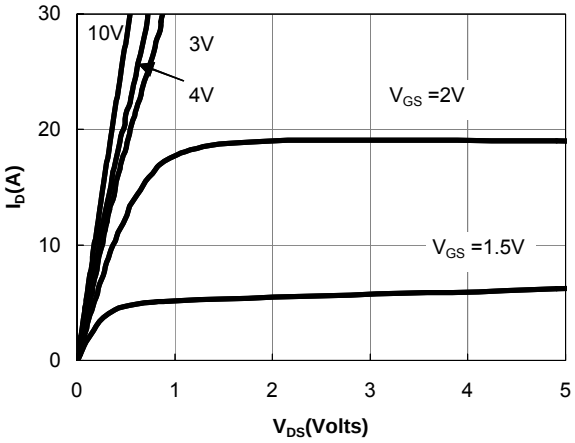


Figure 1: On-Regions Characteristics

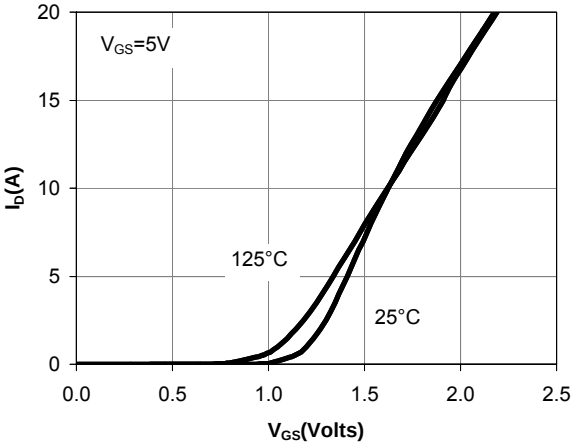


Figure 2: Transfer Characteristics

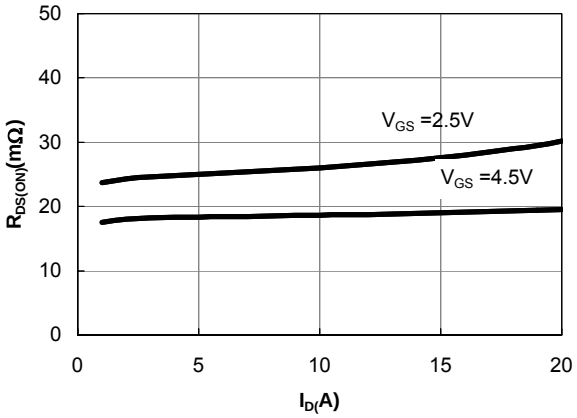


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

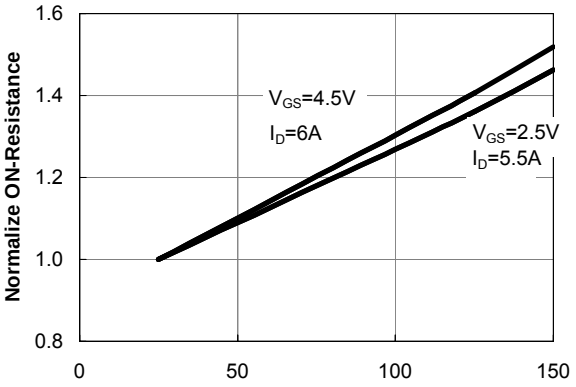


Figure 4: On-Resistance vs. Junction Temperature

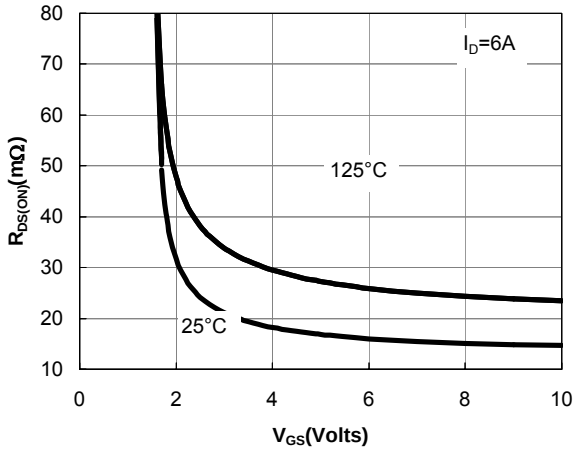


Figure 5: On-Resistance vs. Gate-Source Voltage

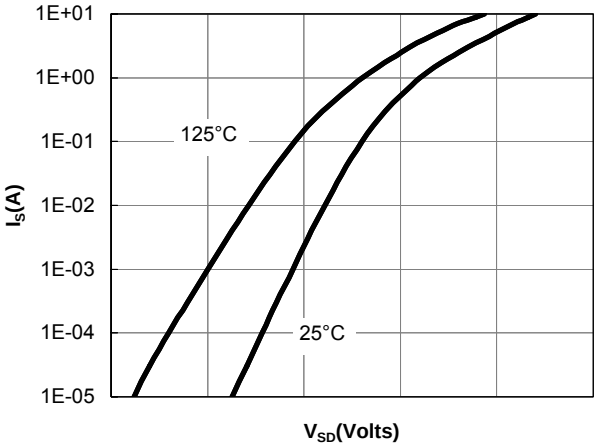


Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

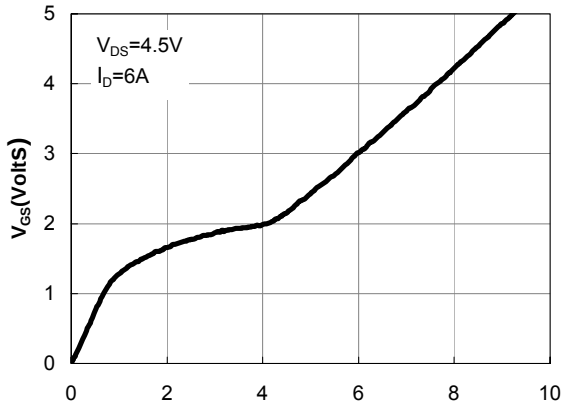


Figure 7: Gate-Charge Characteristics

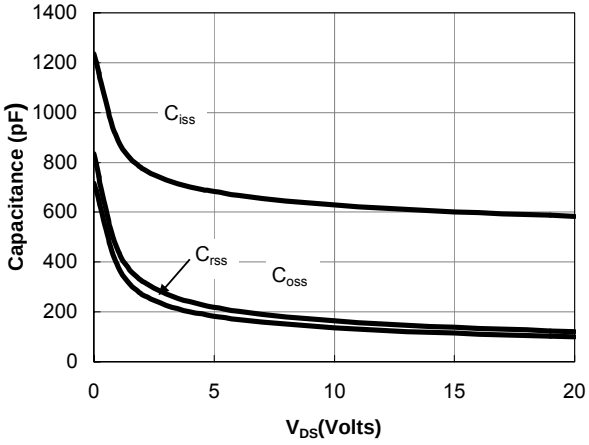


Figure 8: Capacitance Characteristics

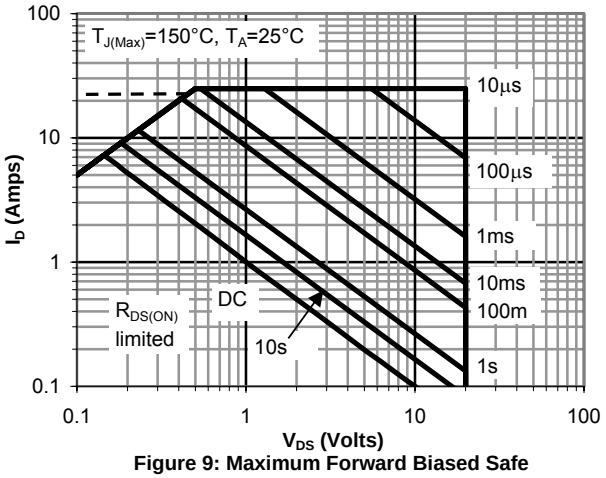


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

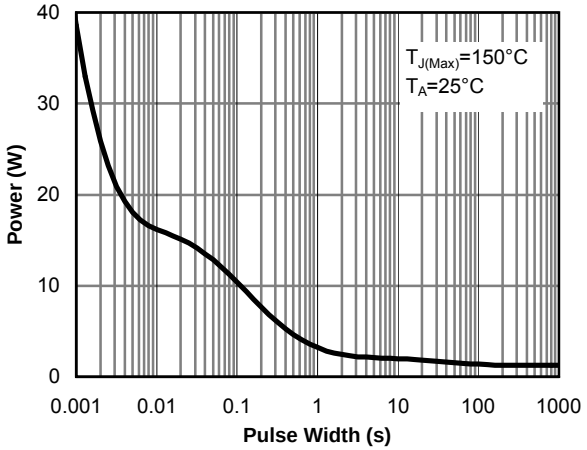


Figure 10: Single Pulse Power Rating Junction-to-

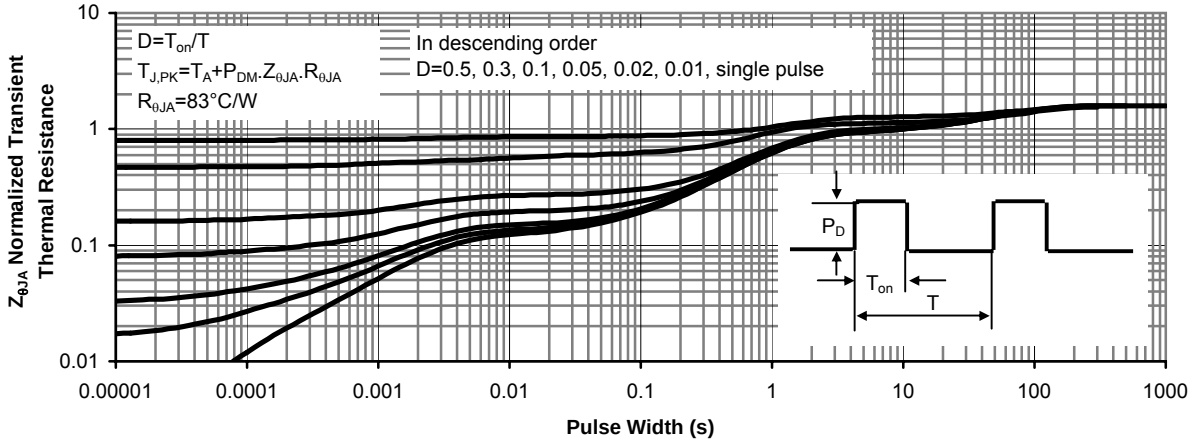
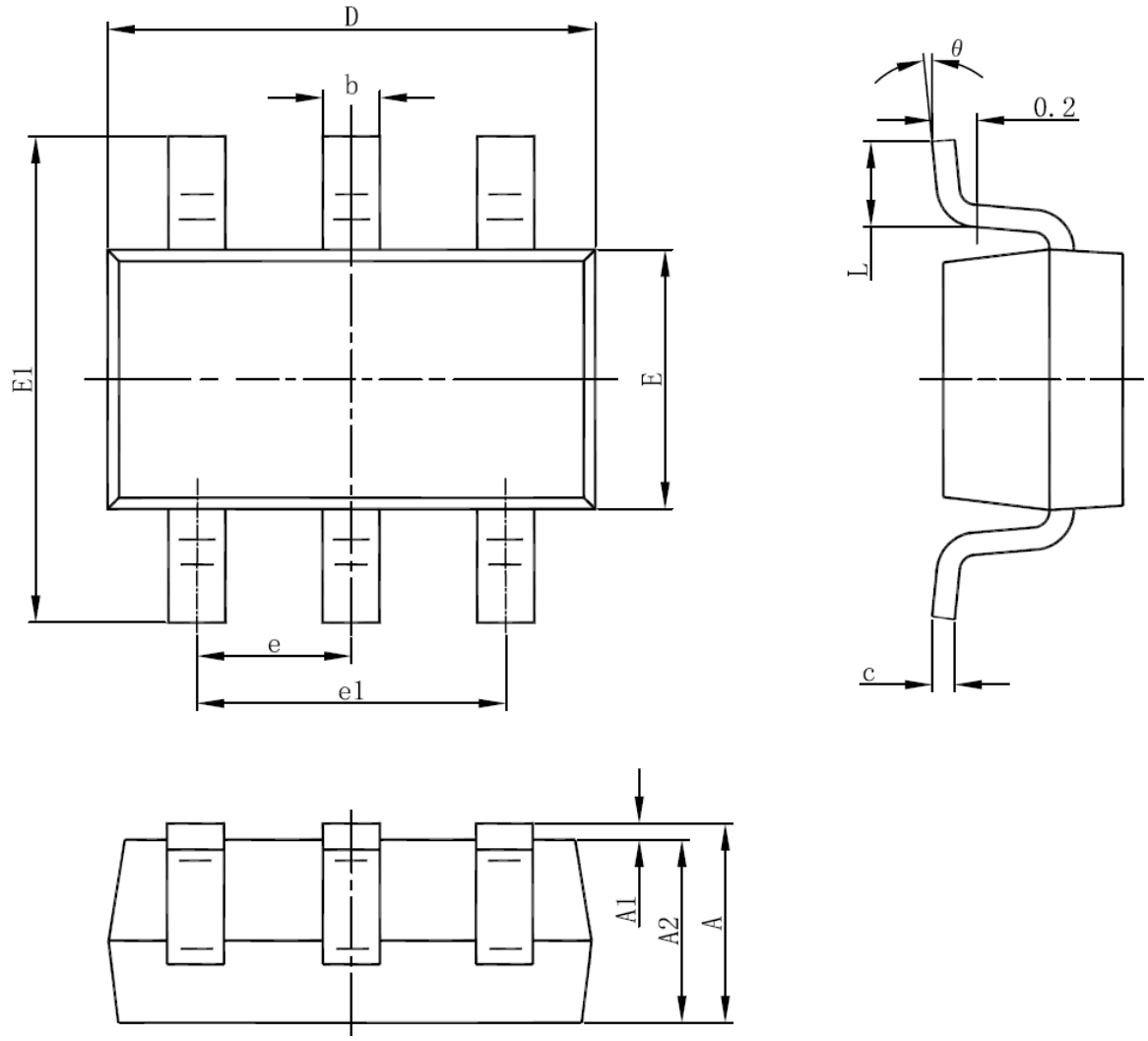


Figure 11: Normalized Maximum Transient Thermal Impedance

SOT23-6 Package Information



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
E	1.500	1.700	0.059	0.067
E1	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°

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