ER6800L

30V Dual N-Channel MOSFET

Features

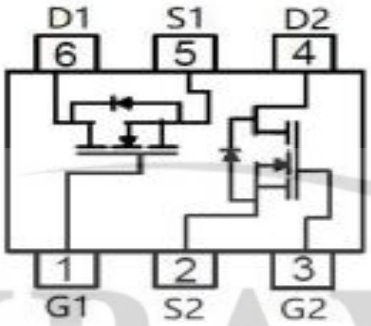
The E R 6800L uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge.It can be used in a wide variety of applications.

Product Summary

BVDSS	RDSON	ID
30V	29mΩ	4.5A

Dual SOT-23-6L

PIN1



Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	30	V
Gate-Source Voltage	VGS	±12	
Continuous Drain Current	ID@TA=25℃	4.5	A
Continuous Drain Current	ID@TA=70℃	2.8	
Pulsed Drain Current ①	IDM	15	
Power Dissipation ②	PD	1.25	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	125	℃/W
Thermal Resistance Junction-Case	RθJC	-	℃/W
Operating Junction	TJ	150	℃
Storage Temperature	TSTG	-55~+150	℃

Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS = 0V, ID = 250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	VDS =VGS, ID = 250μA	1.0	1.5	2.5	V
Gate-Body leakage Current	I_{GSS}	VDS =0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	VDS = 30V, VGS =0V			1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	VGS = 10V, ID = 4A		29	38	mΩ
		VGS = 4.5V, ID = 3A		45	65	mΩ
Diode Forward Voltage	V_{SD}	IS=4A,VGS=0V			1.2	V
Dynamic Parameters ④						
Input Capacitance	C_{iss}	VDS=15V, VGS=0V, f=1.0MHz		233		pF
Output Capacitance	C_{oss}			44		pF
Reverse Transfer Capacitance	C_{rss}			33		pF
Total Gate Charge	Q_g	VDS=15V, ID=2A, VGS=10V		3	7	nC
Gate Source Charge	Q_{gs}			0.5		nC
Gate Drain Charge	Q_{gd}			0.8		nC
Switching Parameters ④						
Turn-On DelayTime	$t_{d(on)}$	VDS=15V, ID=4A, RGEN=3Ω, VGS=10V		4		ns
Turn-On Rise Time	tr			2.1		ns
Turn-Off DelayTime	$t_{d(off)}$			15		ns
Turn-Off Fall Time	tf			3.2		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current		IS			4.5	A
Maximum Pulsed Drain to Source Diode Forward Current		ISM			16	A

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

Figure1: Output Characteristics

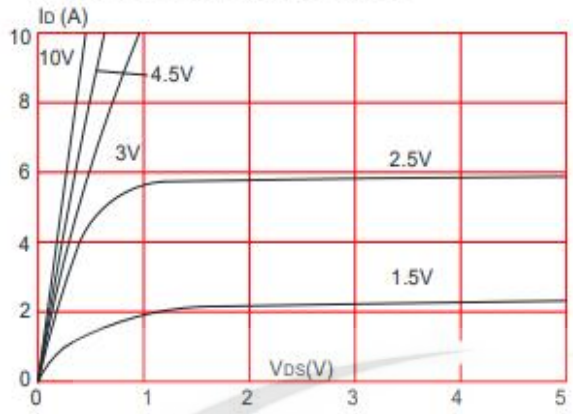


Figure 2: Typical Transfer Characteristics

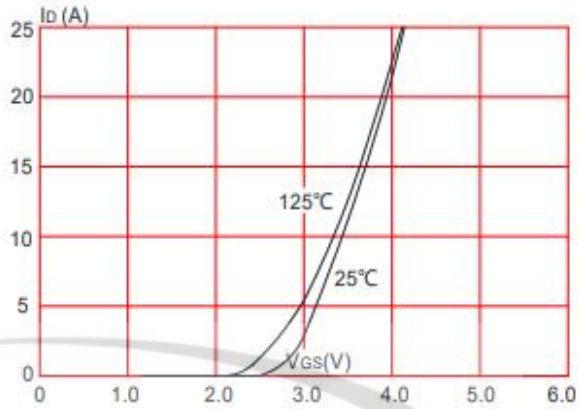


Figure 3: On-resistance vs. Drain Current

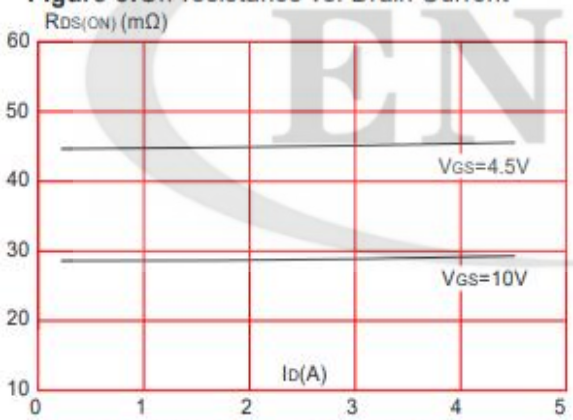


Figure 4: Body Diode Characteristics

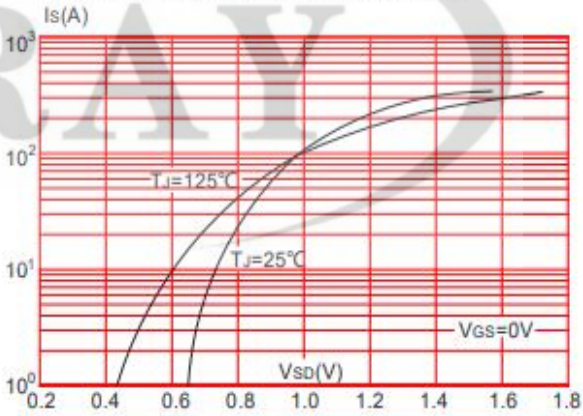


Figure 5: Gate Charge Characteristics

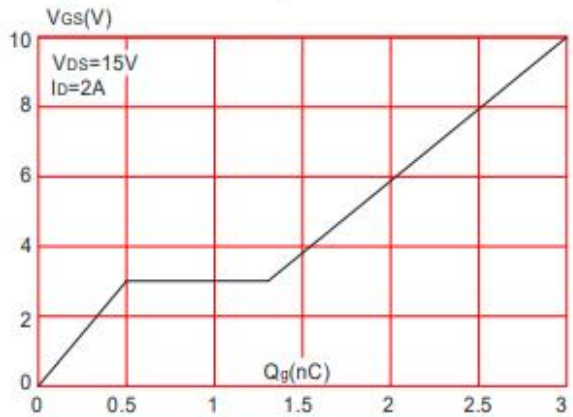
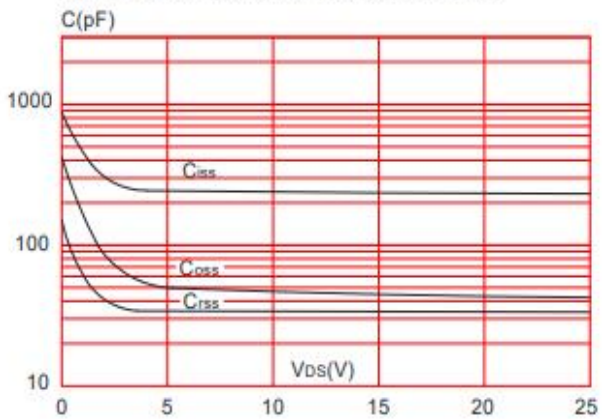


Figure 6: Capacitance Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

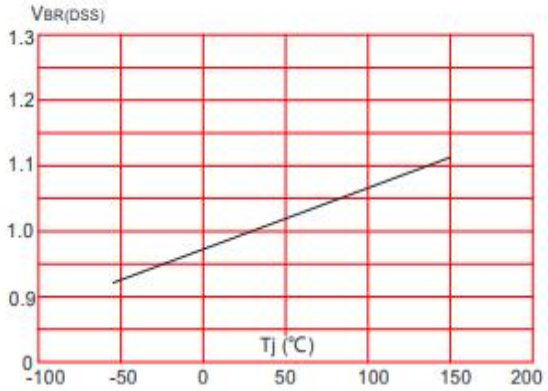


Figure 8: Normalized on Resistance vs. Junction Temperature

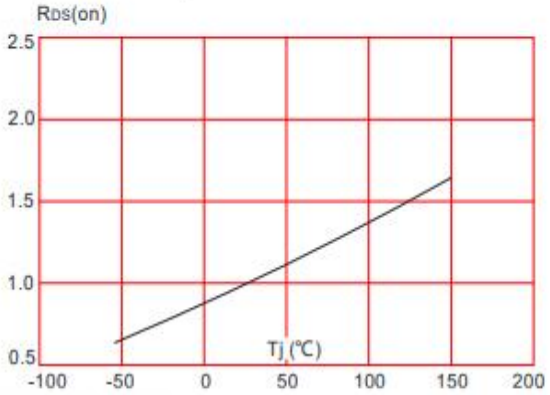


Figure 9: Maximum Safe Operating Area

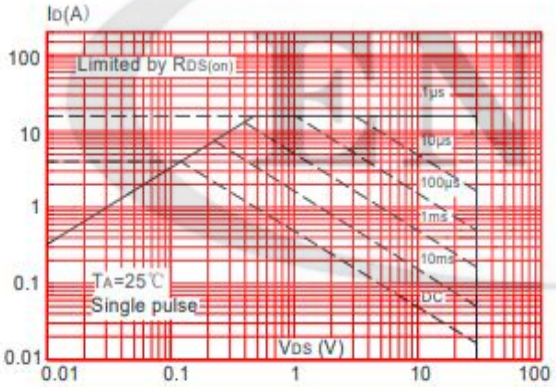


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

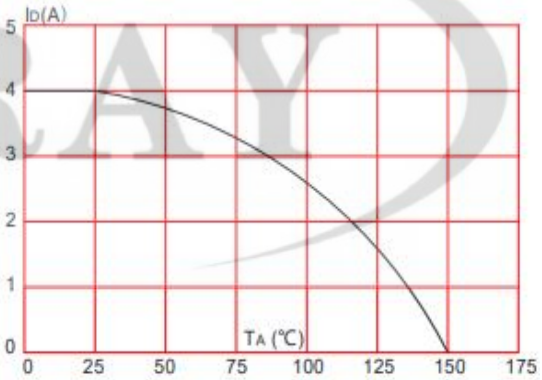
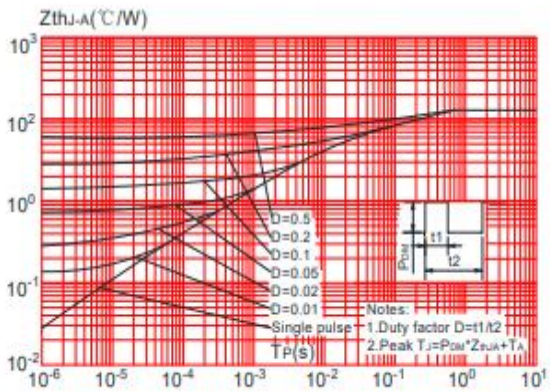
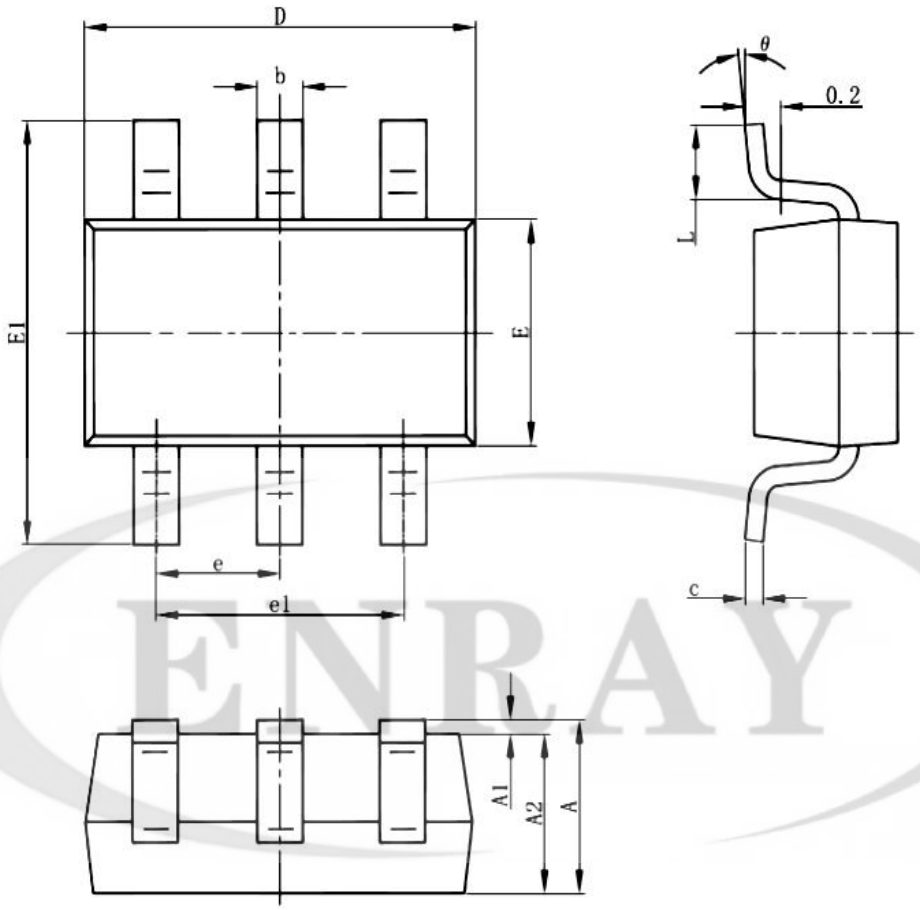


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



SOT-23-6L Package Outline Dimesions



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°