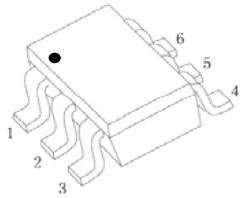
GP8820L

20V Dual N-Channel MOSFET

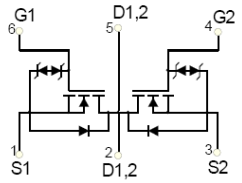
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	13.5mΩ@10V	7A
	15.5mΩ@4.5V	
	16.5mΩ@3.8V	
	21.0mΩ@2.5V	
	32.0mΩ@1.8V	

SOT-23-6L



Schematic diagram



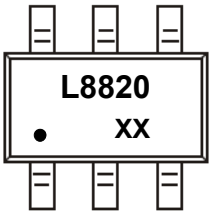
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- ESD Protected

Application

- Load Switch
- DC/DC Converter

MARKING:



L8820 = Device Code

XX = Date Code

Solid Dot = Pin1 Indicater

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[1,5]	T_A = 25℃	I_D	7	A
	T_A = 100℃	I_D	4	A
Pulsed Drain Current[2]		I_{DM}	28	A
Power Dissipation[4,5]	T_A = 25℃	P_D	1.4	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	89	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±10V, V_{DS} = 0V			±5	μA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.5	0.75	1.1	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 3.0A	10	13.5	21	mΩ
		V_{GS} = 4.5V, I_D = 3.0A	12	15.5	24	
		V_{GS} = 3.8V, I_D = 3.0A	14	16.5	28	
		V_{GS} = 2.5V, I_D = 3.0A	16	21.0	32	
		V_{GS} = 1.8V, I_D = 3.0A	25	32.0	50	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 0.1MHz		415		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			40		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 10V, V_{GS} = 10V, I_D = 3A		13.8		nC
Gate-source Charge	Q_{gs}			0.6		
Gate-drain Charge	Q_{gd}			1.7		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 15V, V_{GS} = 10V, R_L = 3Ω, R_G = 3Ω		0.7		ns
Turn-on Rise Time	t_r			1.2		
Turn-off Delay Ttime	$t_{d(off)}$			11		
Turn-off Fall Time	t_f			5		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = 1A			1.2	V

Notes :

1.The maximum current rating is limited by package.

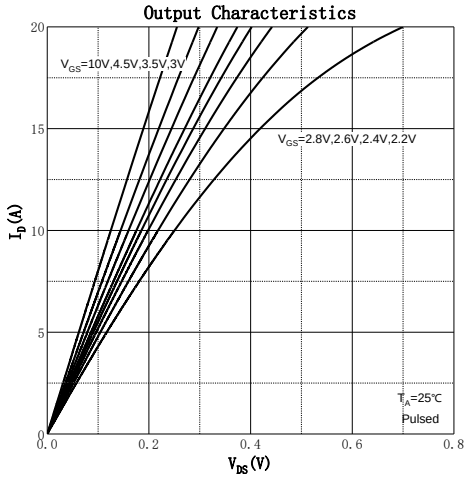
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

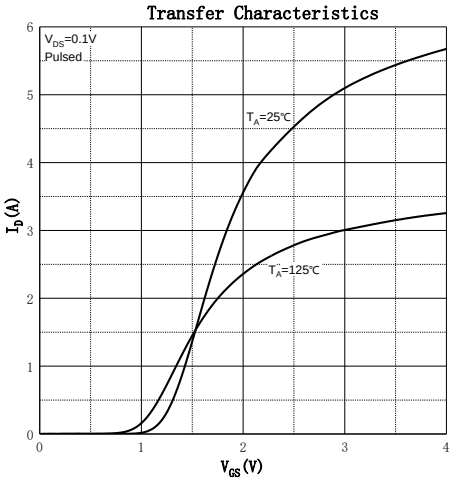
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

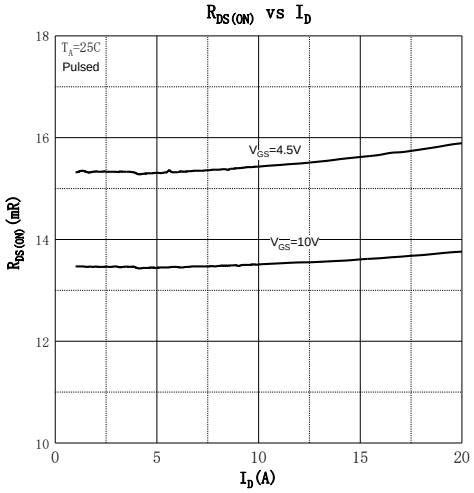
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

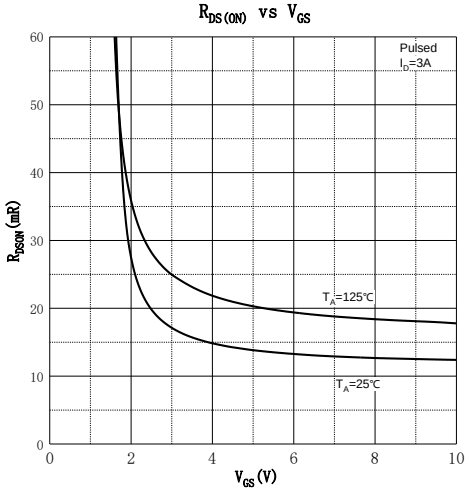
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

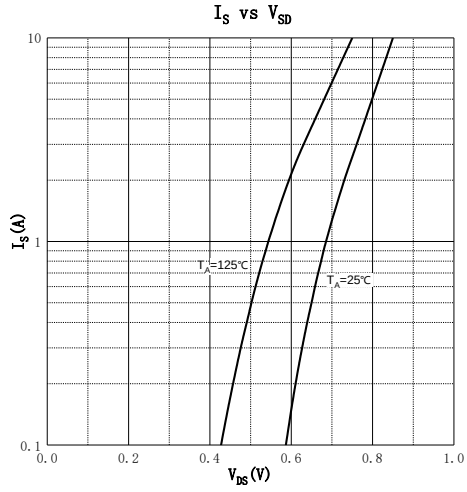
Typical Characteristics

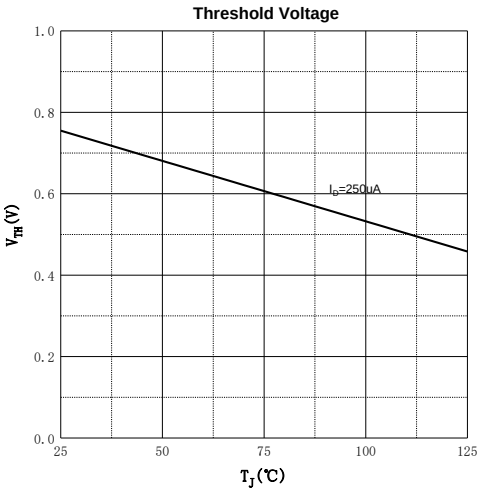




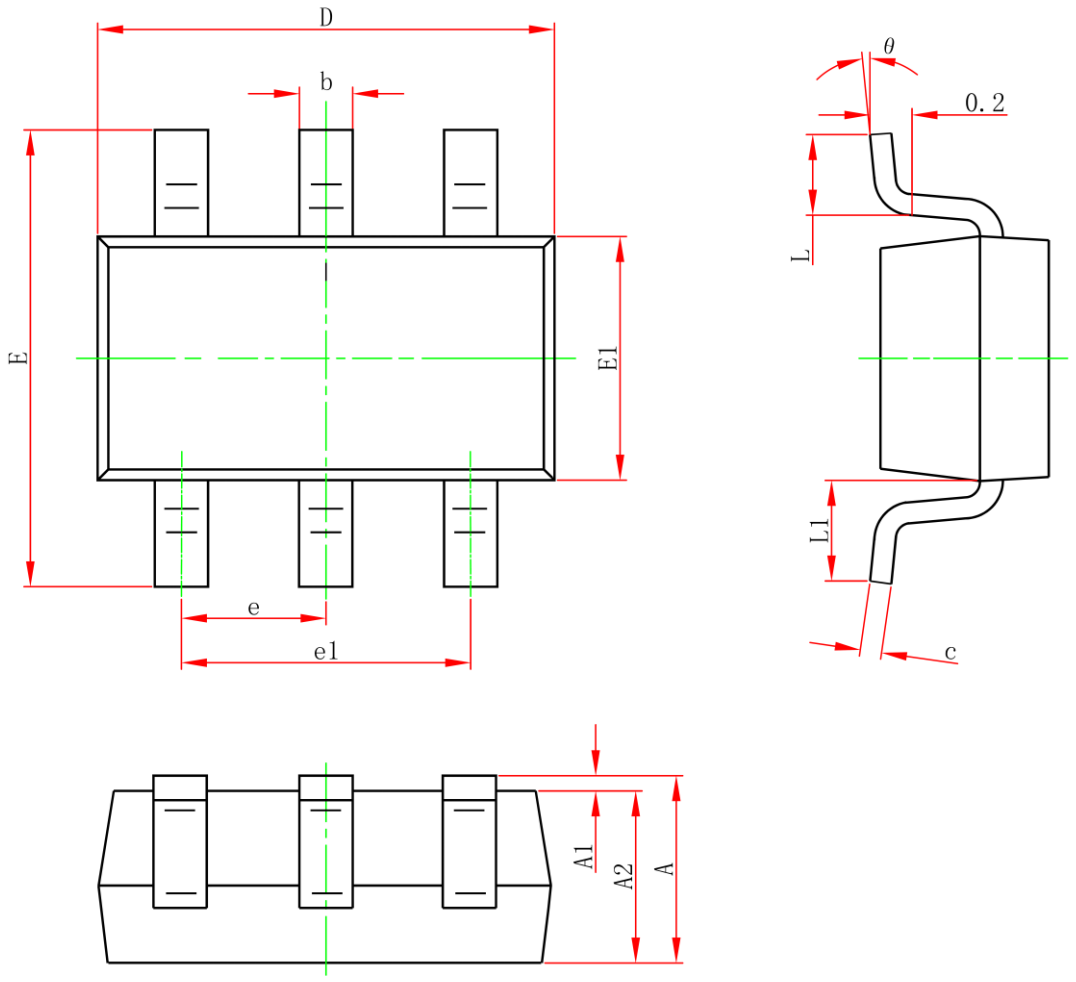








SOT-23-6L Package Information



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°