

SuperMOS –SOT23-6L 20V BV_{DSS}, 13.5mΩ R_{DS(on)}, N-channel MOSFET

1. Description

The ESJL8810 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent R_{DS(ON)} with low gate charge. Device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product ESJL8810 is Pb-free.

2. Features

- 20V, R_{DS(ON)}=13.5mΩ(Typ.), V_{GS}=4.5V
R_{DS(ON)}=16.5mΩ(Typ.), V_{GS}=2.5V
 - Use trench MOSFET technology
 - High density cell design for low R_{DS(on)}
- Material: Halogen free
 - Reliable and rugged
 - Avalanche Rated
 - Low leakage current

3. Applications

- PWM applications
 - Load switch
- Power management in portable/desktop PCs
 - DC/DC conversion

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
ESJL8810	SOT23-6L	.L8810	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

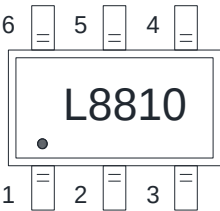
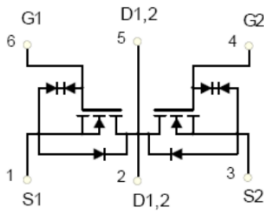
Pin	Function	Outline	Circuit Diagram
6	Gate1		
1	Source1		
2/5	Drain		
4	Gate2		
3	Source2		

Table-2 Pin configuration

6. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		BV_{DSS}	20	V
Gate-Source Voltage		V_{GS}	± 10	V
Continuous Drain Current	$T_A=25^{\circ}\text{C}$	I_D	7.6	A
	$T_A=75^{\circ}\text{C}$		5.9	
Maximum Power Dissipation	$T_A=25^{\circ}\text{C}$	P_D	1.5	W
	$T_A=75^{\circ}\text{C}$		0.9	
Pulsed Drain Current		I_{DM}	30.4	A
Operating Junction Temperature		T_J	150	$^{\circ}\text{C}$
Lead Temperature		T_L	260	$^{\circ}\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150	$^{\circ}\text{C}$

Thermal resistance ratings

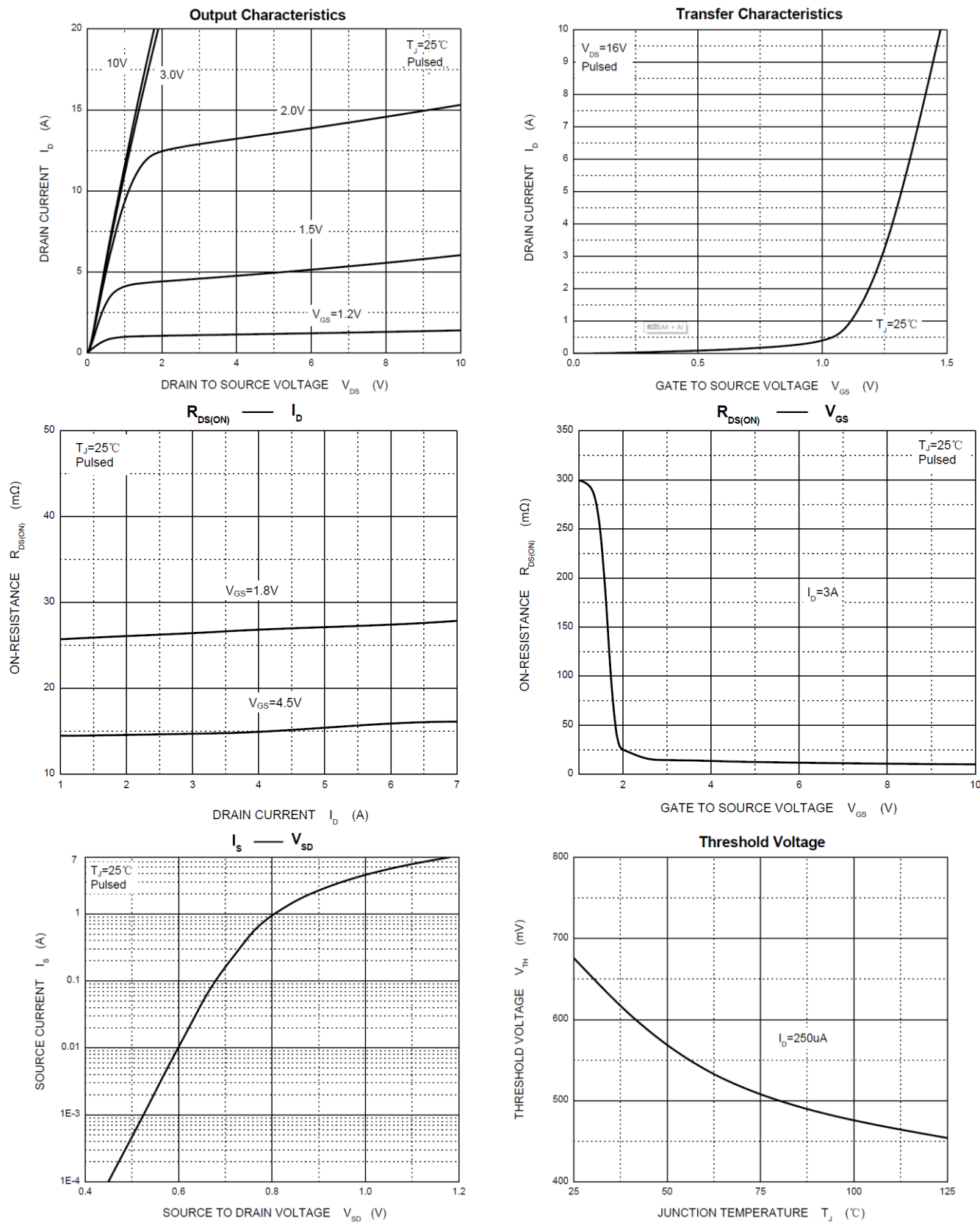
Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance	$t \leq 10 \text{ s}$	$R_{\theta JA}$		83.3	$^{\circ}\text{C/W}$

Electrical Characteristics

At TA = 25°C unless otherwise specified

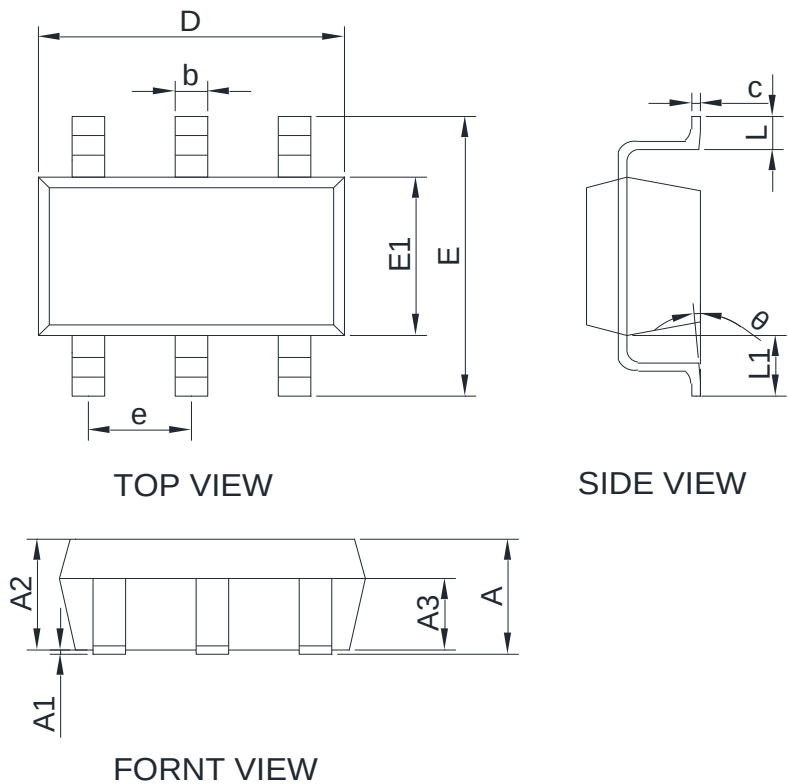
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1.0	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±10	uA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250uA	0.5	0.7	0.9	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =5A		13.5	17	mΩ
		V _{GS} =2.5V, I _D =5A		16.5	23	
Forward Trans conductance	g _{FS}	V _{DS} =5.0V, I _D =5A			40	S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} =0V, f=1MHz, V _{DS} =10V		1150		pF
Output Capacitance	C _{OSS}			165		
Reverse Transfer Capacitance	C _{RSS}			150		
Total Gate Charge	Q _{G(TOT)}	V _{GS} =4.5V, V _{DS} =10V, I _D =5A		15		nC
Gate-to-Source Charge	Q _{GS}			1		
Gate-to-Drain Charge	Q _{GD}			3.5		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{d(ON)}	V _{GS} =4.5V, V _{DS} =10V, R _L =1.35Ω, R _G =3Ω		8		ns
Rise Time	t _r			11		
Turn-Off Delay Time	t _{d(OFF)}			50		
Fall Time	t _f			18		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A	0.45		1.5	V

7. Typical Characteristic



8. Dimension (SOT23-6L)

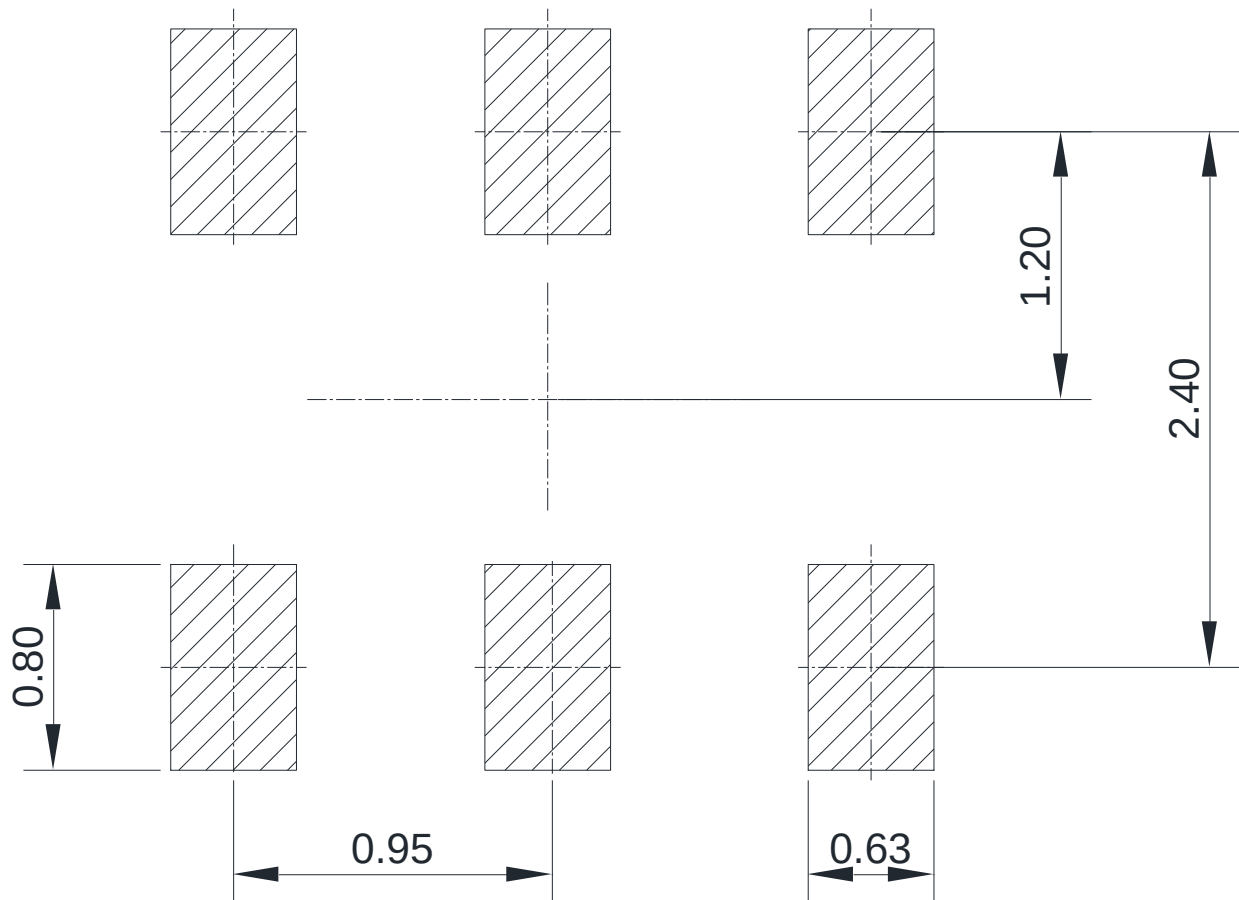
POD(Z)



Unit: mm

Symbol		A	A1	A2	A3	b	c	D
Spec	Min	1.000	0.000	1.000	0.500	0.300	0.100	2.700
	Max	1.300	0.110	1.200	0.800	0.500	0.250	3.100
Symbol		E	E1	e	L	L1	θ	
Spec	Min	2.600	1.500	0.850	0.300	0.550	0°	
	Max	3.000	1.800	1.050	0.600	0.700	8°	

9. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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