

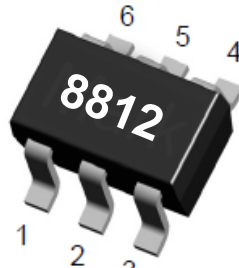
Dual N-Channel High Density Trench MOSFET (20V, 6.5A)

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m Ω)Max
20V	6.5A	16 @ $V_{GS} = 4.5V, I_D=6.5A$
		17 @ $V_{GS} = 4.0V, I_D=6A$
		24 @ $V_{GS} = 2.5V, I_D=5.2A$

Features

- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Surface mount Package
- ESD Protected 1KV
- Lead (Pb) -free and halogen-free



EC8812 Pin Assignmetty & Symbol

6-Lead Plastic **SOT-23-6L**
 Pin 1: S1 2: D1/D2 3: S2
 4: G2 5: D1/D2 6: G1

Absolute Maximum Ratings ($T_A=25^\circ C$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Drain Current (Continuous)	6.5	A
I_{DM}	Drain Current (Pulsed) ^a	24	A
P_D	Total Power Dissipation @ $T_A=25^\circ C$	1.25	W
I_S	Maximum Diode Forward Current	1.7	A
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ C$
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	62.5	$^\circ C/W$

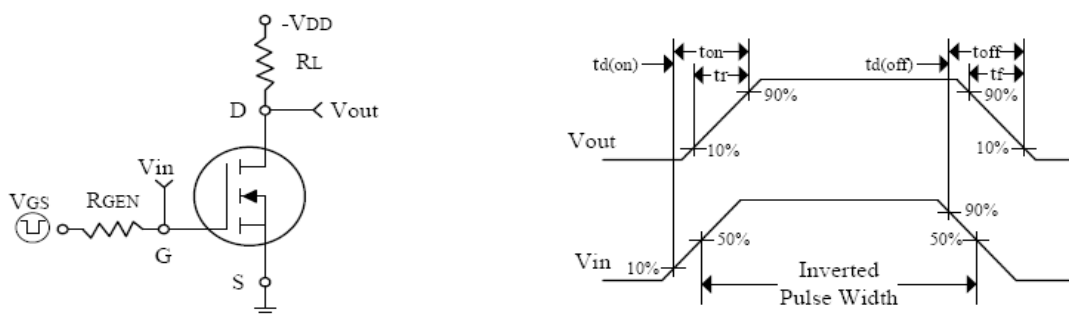
a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

b: 1-in² 2oz Cu PCB board

Electrical Characteristics (T_A=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, V _{DS} =0V	-	-	±10	μA
• On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.6	0.7	1.2	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =6.5A	-	16	20	mΩ
		V _{GS} =3V, I _D =5.2A	-	17	25	
		V _{GS} =2.5V, I _D =5.2A	-	24	35	
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =8V, V _{GS} =0V, f=1MHz	-	950	-	PF
C _{oss}	Output Capacitance		-	450	-	
C _{rss}	Reverse Transfer Capacitance		-	135	-	
• Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =6A, V _{GS} =4.5V	-	15	-	nC
Q _{gs}	Gate-Source Charge		-	3.4	-	
Q _{gd}	Gate-Drain Charge		-	1.2	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, R _L =1.2Ω, I _D =1A, V _{GEN} =10V, R _G =6Ω	-	140	-	nS
t _r	Turn-on Rise Time		-	210	-	
t _{d(off)}	Turn-off Delay Time		-	390	-	
t _f	Turn-off Fall Time		-	220	-	
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =1.7A	-	-	1.2	V

Note: Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%



Switching Test Circuit and Switching Waveforms

Typical Characteristics Curves (Ta=25°C, unless otherwise note)

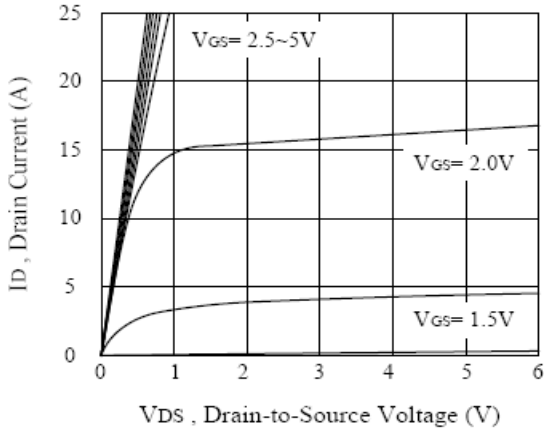


Figure 1. Output Characteristics

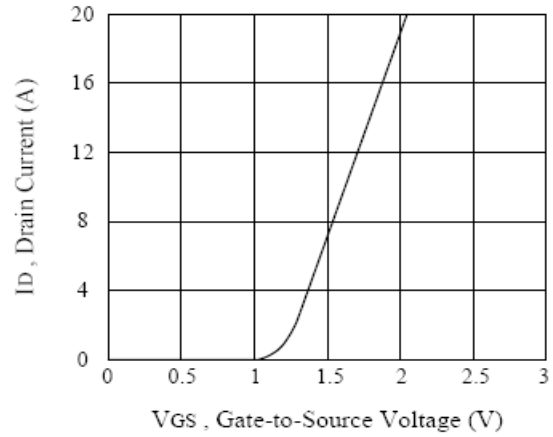


Figure 2. Transfer Characteristics

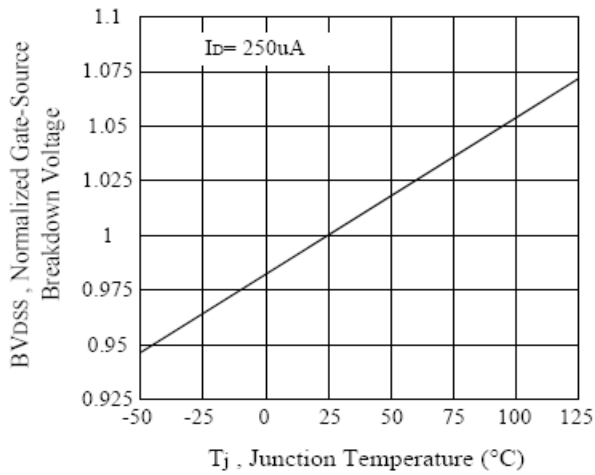


Figure 3. Breakdown Voltage Variation with Temperature

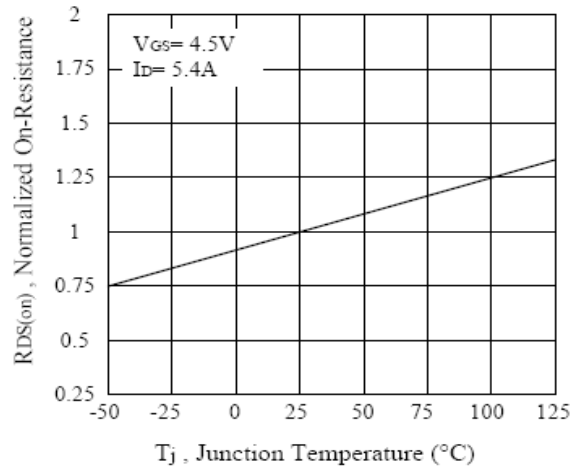


Figure 4. On-Resistance Variation with Temperature

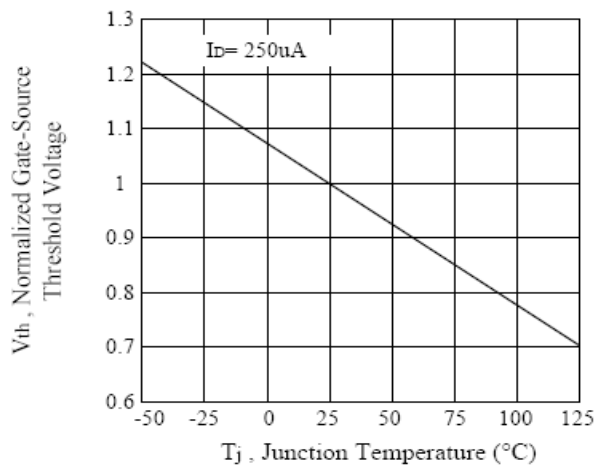


Figure 5. Gate Threshold Variation with Temperature

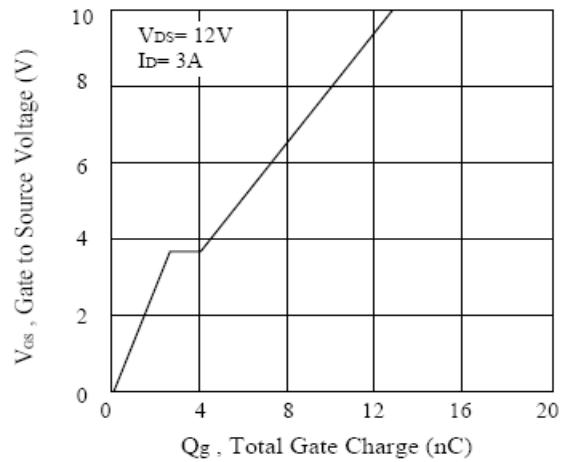
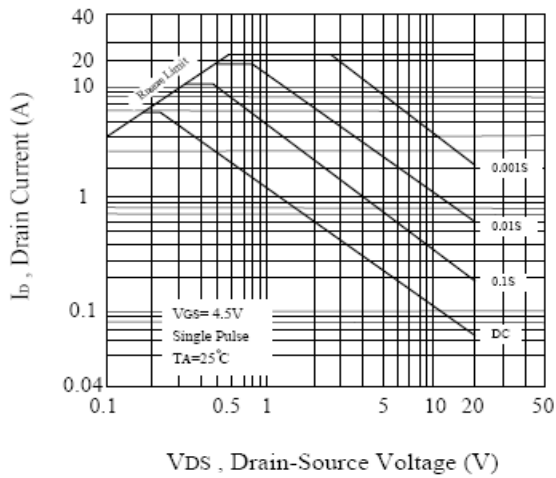
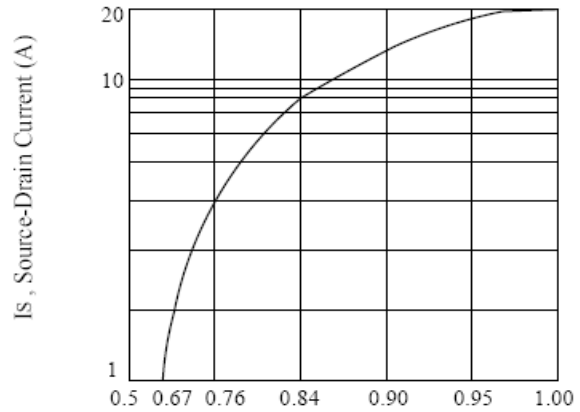


Figure 6. Gate Charge



VDS, Drain-Source Voltage (V)
Figure 7. Maximum Safe Operating Area



VSD, Body Diode Forward Voltage (V)
Figure 8. Body Diode Forward Voltage Variation with Source Current

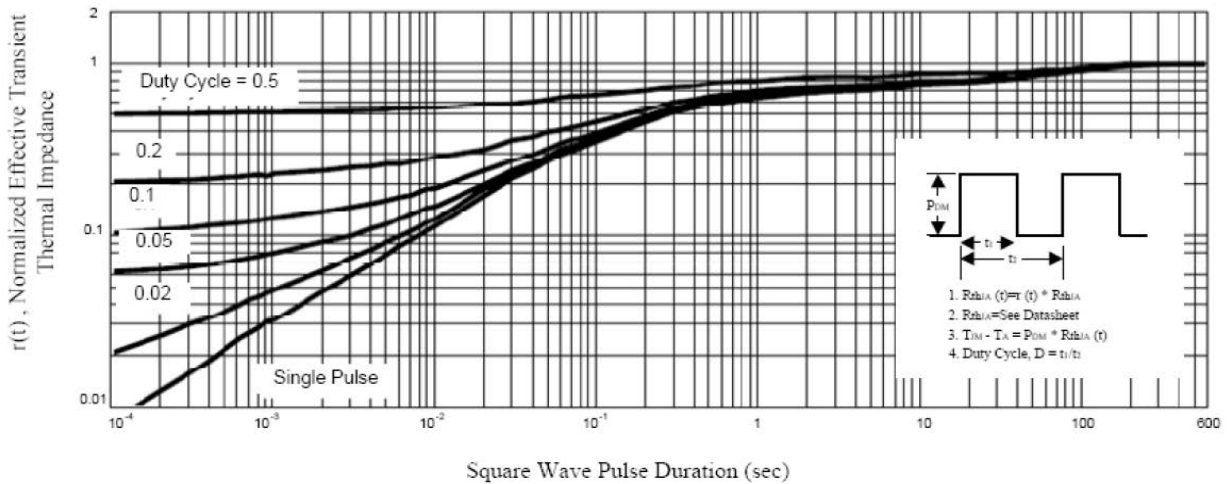
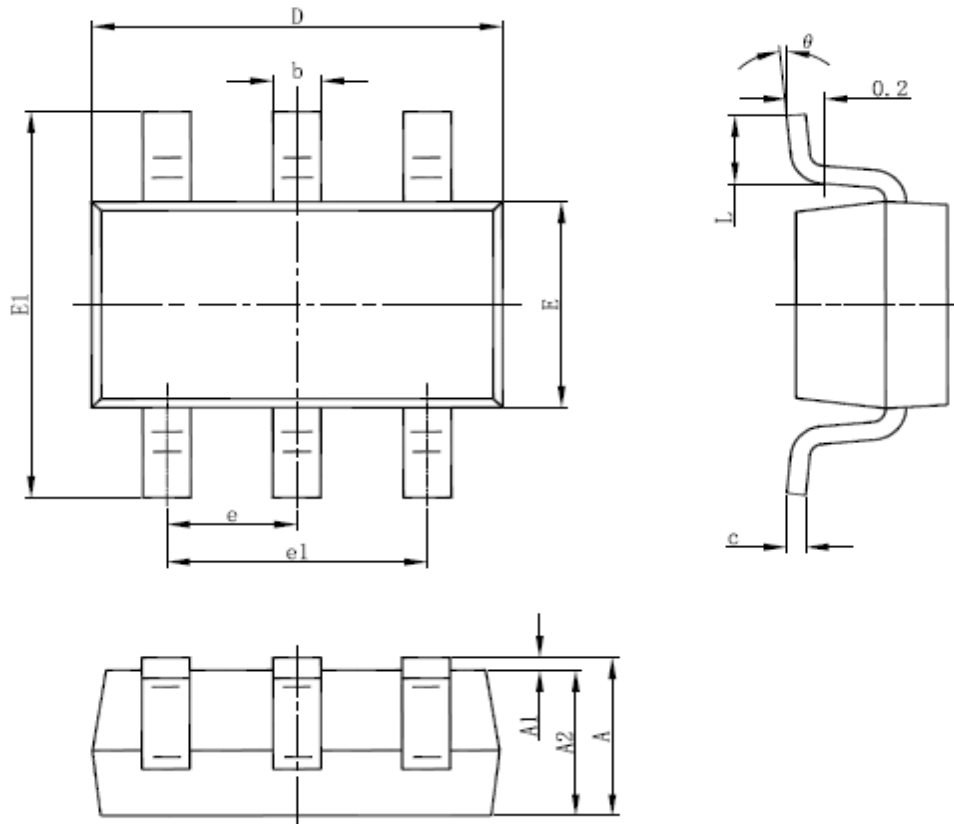


Figure 9. Normalized Thermal Transient Impedance Curve

SOT23-6L PACKAGE OUTLINE DIMENSIONS



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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