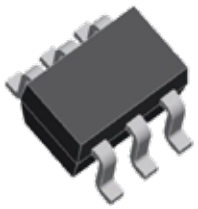
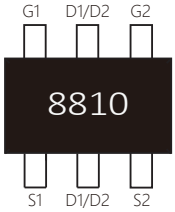
FEATURES

- V_{DS} = 20V, I_D = 7A $R_{DS(ON)}$ <1 8m Ω @V_{GS}=4.5V
- $R_{DS(ON)}$ <30m Ω @V_{GS}=2.5V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package
- ESD



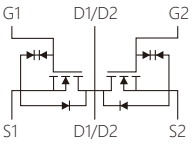
SOT-23-6



Marking

APPLICATION

- PWM applications
- Load switch
- Power management



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS (T_a=25℃)

Parameter		Symbol	Value	Unit
Drain-source voltage		V_{DS}	20	V
Continuous drain current (TJ = 150 ℃) [a]	T_A=25℃	I_D	7.0	A
	T_A=70℃		4.1	A
Pulsed Drain Current		I_{DM}	19	A
Gate-source voltage		V_{GS}	±10	V
Power dissipation [a]	T_A=25℃	P_D	0.75	W
	T_A=70℃		0.5	W
Maximum junction-to-ambient Steady-State [a]		$R_{\theta JA}$	151	℃/W
Operating junction and storage temperature range		T_J,T_{STG}	-55 to 150	℃

a. Surface mounted on 1" x 1" FR4 board

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristice						
Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V			1	μA
Gate–Body Leakage Current	I_{GSS}	V_{GS}=±10V,V_{DS}=0V			±10	uA
ON Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.4	0.7	1.0	V
Drain-Source On–State Resistance[a]	$R_{DS(on)}$	V_{GS}=4.5V,I_D=4A		13.5	18	mΩ
		V_{GS}=2.5V,I_D=3A		21	30	mΩ
Forward transconductance [a]	g_{FS}	V_{DS}=5V,I_D=1A		10		S
Dynamic Characteristics [b]						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,F=1.0MHz		545		pF
Output Capacitance	C_{oss}			103		pF
Reverse Transfer Capacitance	C_{rss}			90		pF
Switching Characteristics						
Turn–On Delay Time	$t_{d(on)}$	V_{DD}=10V,I_D=1A,V_{GEN}=5V R_{GEN}=3ohm		0.5		nS
Turn–On Rise Time	t_r			1		nS
Turn–Off Delay Time	$t_{d(off)}$			12		nS
Turn–Off Fall Time	t_f			4		nS
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,I_D=4.8A		8		nC
Gate- Source Charge	Q_{gs}			2.5		nC
Gate- Drain Charge	Q_{gd}			3.0		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage[Note 3]	V_{SD}	V_{GS}=0V,I_S=4A		0.75	1.0	V

Notes
a. Pulse test: Pulse width < 300 μs, duty cycle < 2 %
b. Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Output Characteristics

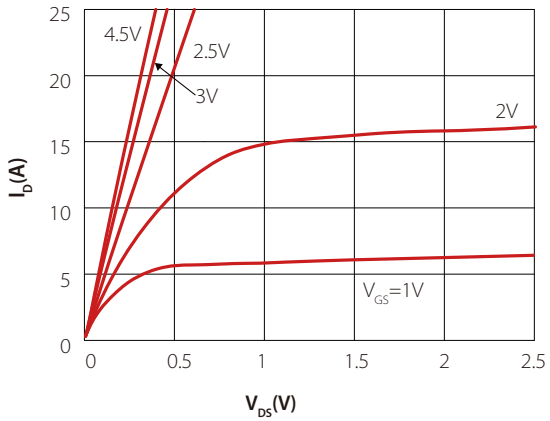


Figure 2: Typical Transfer Characteristics

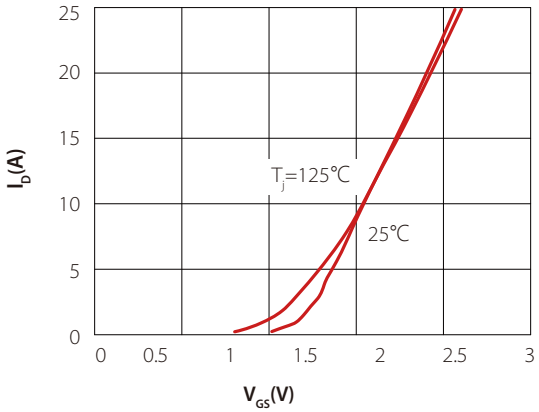


Figure 3: On-resistance vs. Drain Current

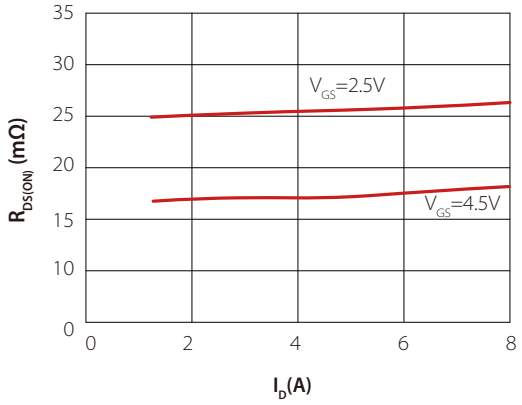


Figure 4: Body Diode Characteristics

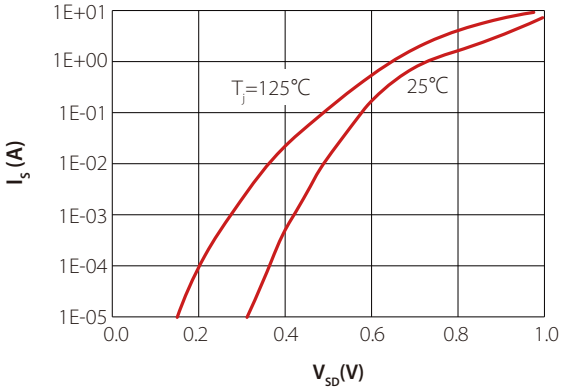


Figure 5: Gate Charge Characteristics

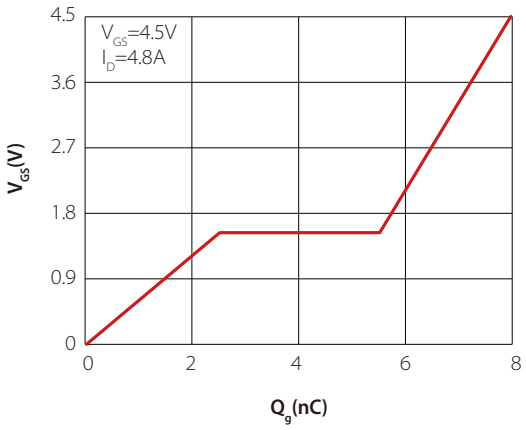
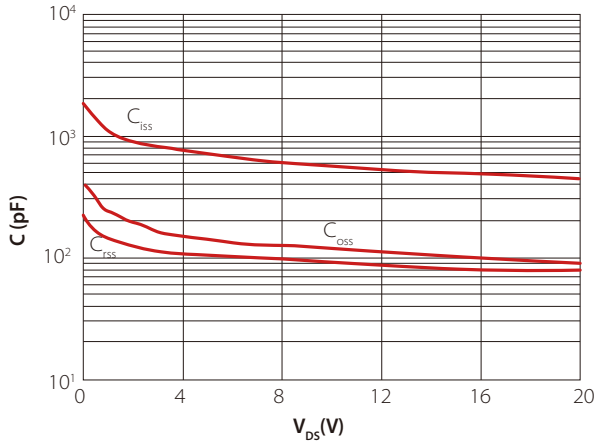


Figure 6: Capacitance Characteristics



0.8 1.0 1.2

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

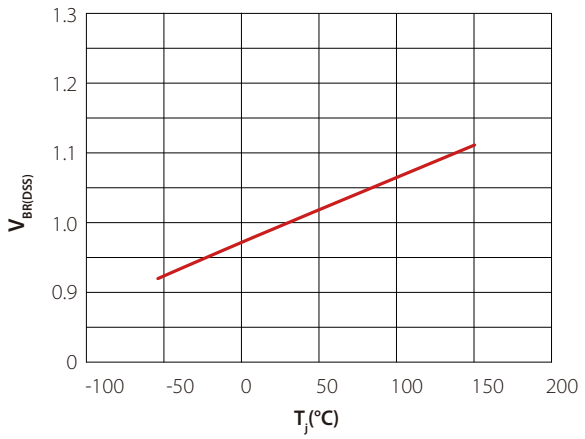


Figure 8: Normalized on Resistance vs. Junction Temperature

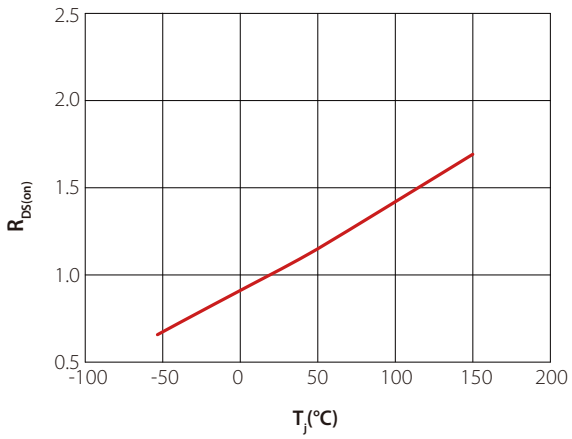


Figure 9: Maximum Safe Operating Area

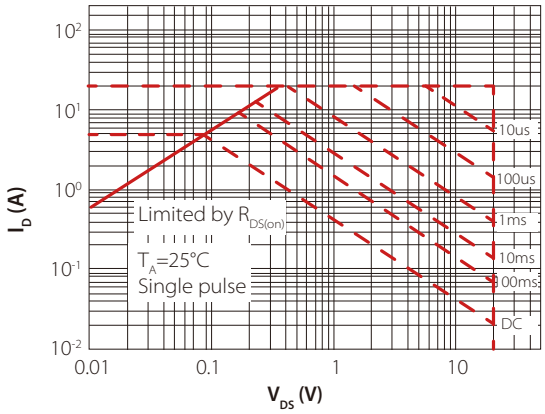
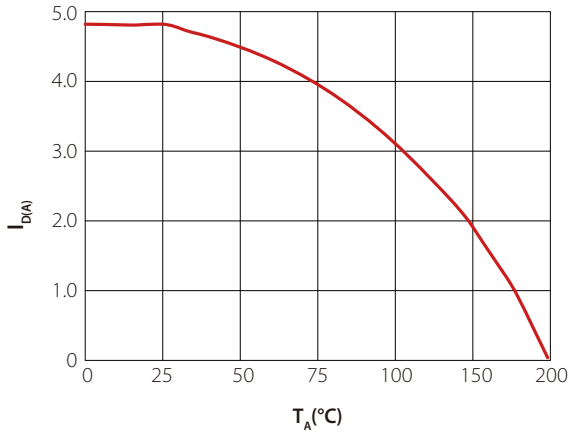
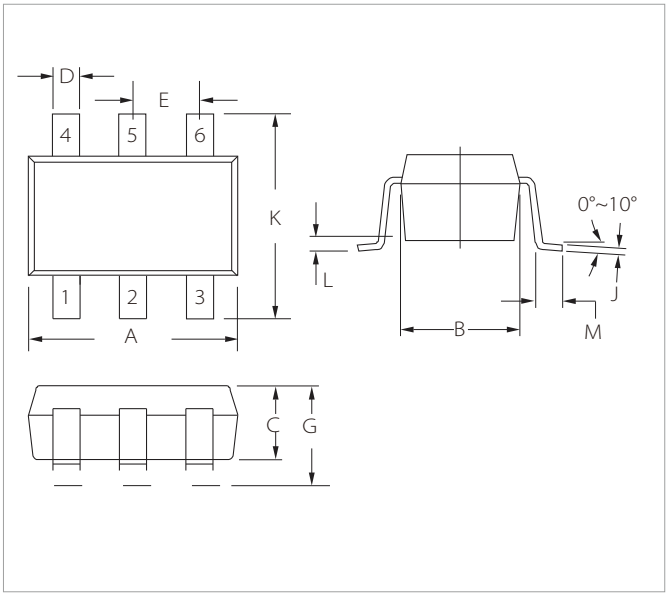


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

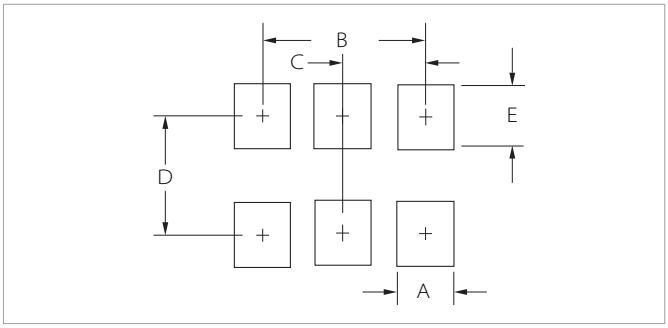


SOT-23-6 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.50	1.75	0.059	0.070
C	0.90	1.30	0.036	0.051
D	0.25	0.50	0.010	0.020
E	0.85	1.05	0.033	0.040
G	0.90	1.45	0.036	0.057
J	0.09	0.20	0.003	0.008
K	2.60	3.00	0.102	0.118
L	0.0	0.15	0.0	0.006
M	0.30	0.60	0.012	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
	Nominal	Nominal
A	0.70	0.028
B	1.90	0.074
C	0.95	0.037
D	2.40	0.094
E	1.00	0.039

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM8810	SOT-23-6	3000PCS	7″

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