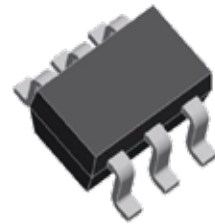


FEATURES

- | Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- | Excellent ON resistance for higher DC current :
 $R_{DS(ON)} < 12.5m\Omega @ V_{GS} = 4.5V$ (Type: 10.9m Ω)
- | $V_{DS} = 20V, I_D = 7.5A$
- | High Power and current handing capability
- | Surface Mount Package
- | ESD Rating: 2500V HBM



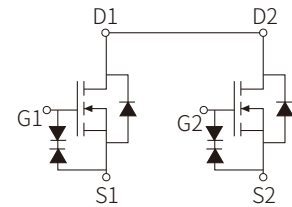
SOT-23-6



Marking

APPLICATION

- | Load/Power Switching for portable device
- | Charging device
- | DC-DC converters



Schematic Symbol

APPROVALS

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

ABSOLUTE MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	20	V
Continuous Drain Current	I_D	$T_c = 25^\circ\text{C}$	7.5
		$T_c = 100^\circ\text{C}$	6.0
Pulsed Drain Current	I_{DM}	30	A
Gate Source Voltage	V_{GSS}	± 12	V
Power Dissipation	P_D	$T_c = 25^\circ\text{C}$	1.5
		Reduction per degree Celsius	0.96
Junction-to-Ambient Thermal Resistance ^a	$R_{\theta JA}$	120	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	70	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

^a Surface mounted on FR-5 Board using 1 square inch pad size, 1oz copper

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =250μA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.50	0.71	1.00	V
Drain Cut-Off Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	uA
Gate Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±0.1	uA
Drain Source ON Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =7.5A		10.9	12.5	mΩ
		V _{GS} =3.6V, I _D =6A		11.7	13.9	mΩ
		V _{GS} =2.5V, I _D =6A		14.3	17.6	mΩ
Forward Trans conductance	gFS	V _{DS} =5V, I _D =7.5A		30		S
Dynamic Characteristics						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =7.5A		15.4		nC
Gate-Source Charge	Q _{gs}			1.4		nC
Gate-Drain Charge	Q _{gd}			4		nC
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =10V, f=1.0MHz		1390		pF
Output capacitance	C _{oss}			190		pF
Reverse transfer capacitance	C _{rss}			150		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V, V _{GS} =5V R _L =1.3Ω, R _G =3.0Ω		6.2		ns
Turn-on Rise Time	t _r			11		ns
Turn-Off Delay Time	t _{d(off)}			40.5		ns
Turn-Off Fall Time	t _f			10		ns
Drain Source Body Diode Characteristics						
Source Drain Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.75	1.0	V

PARAMETER CHARACTERISTIC CURVE

Figure 1: On-Regions Characteristics

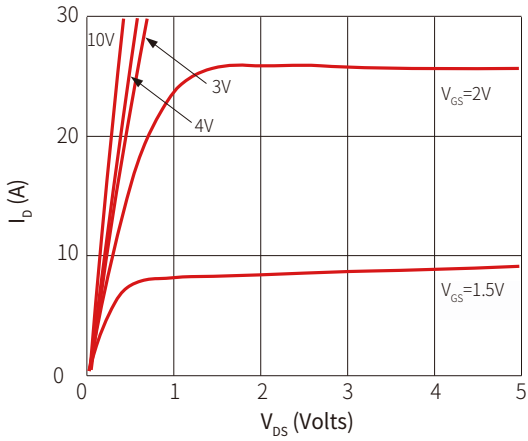


Figure 2: Transfer Characteristics

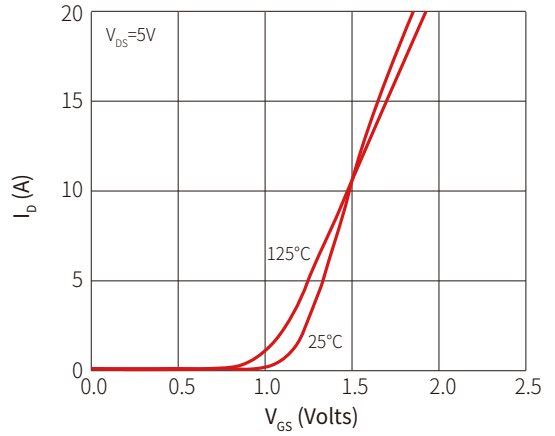


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

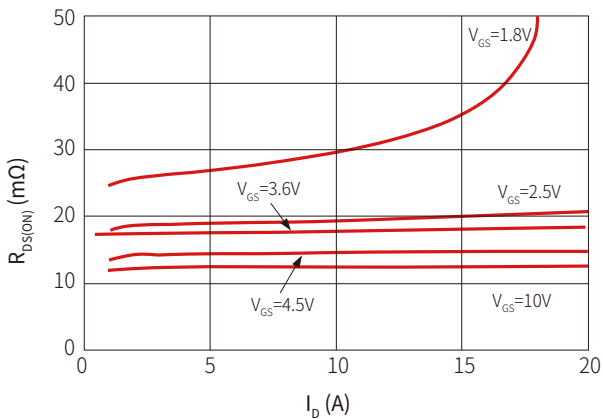


Figure 4: On-Resistance vs. Junction Temperature

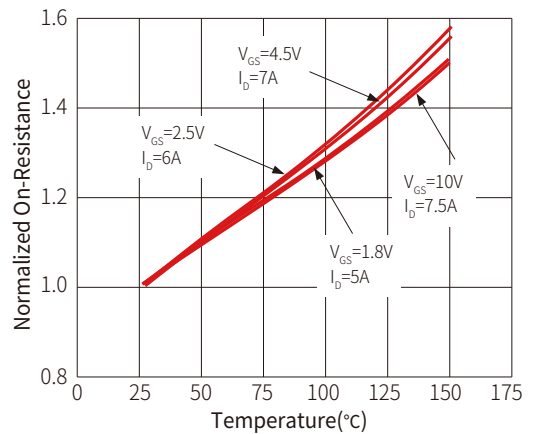


Figure 5: On-Resistance vs. Gate-Source Voltage

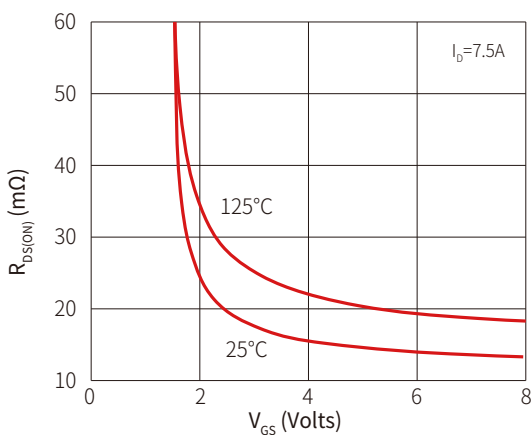


Figure 6: Body-Diode Characteristics

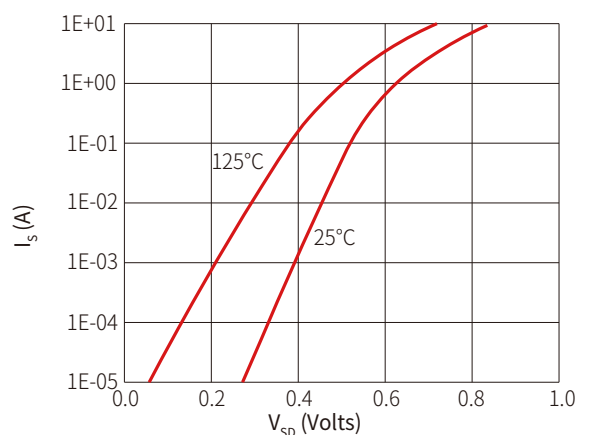


Figure 7: Gate-Charge Characteristics

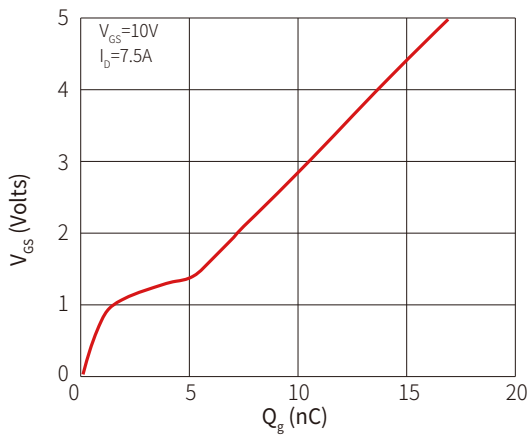


Figure 8: Capacitance Characteristics

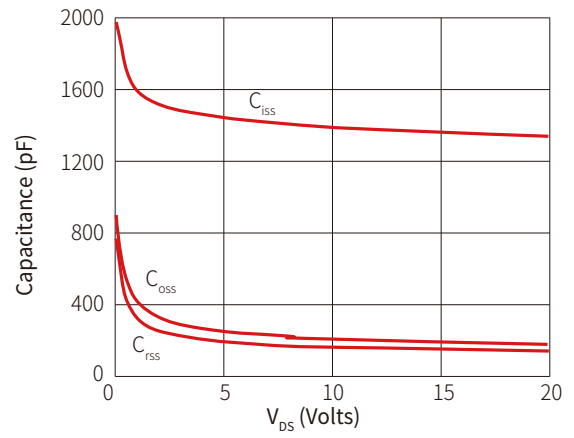


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

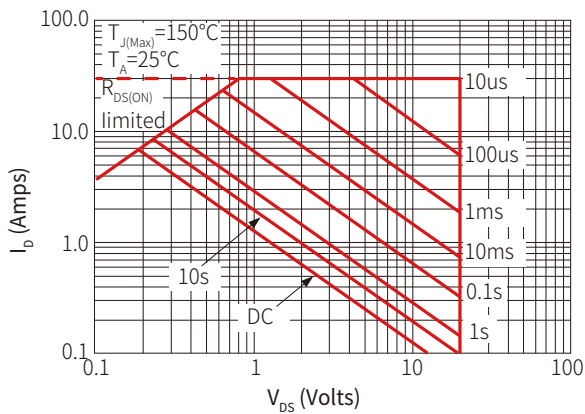


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

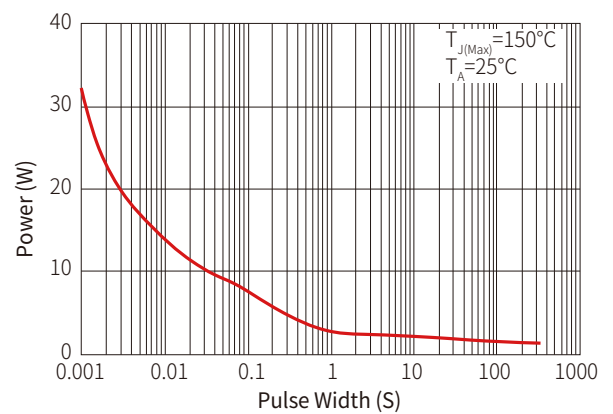
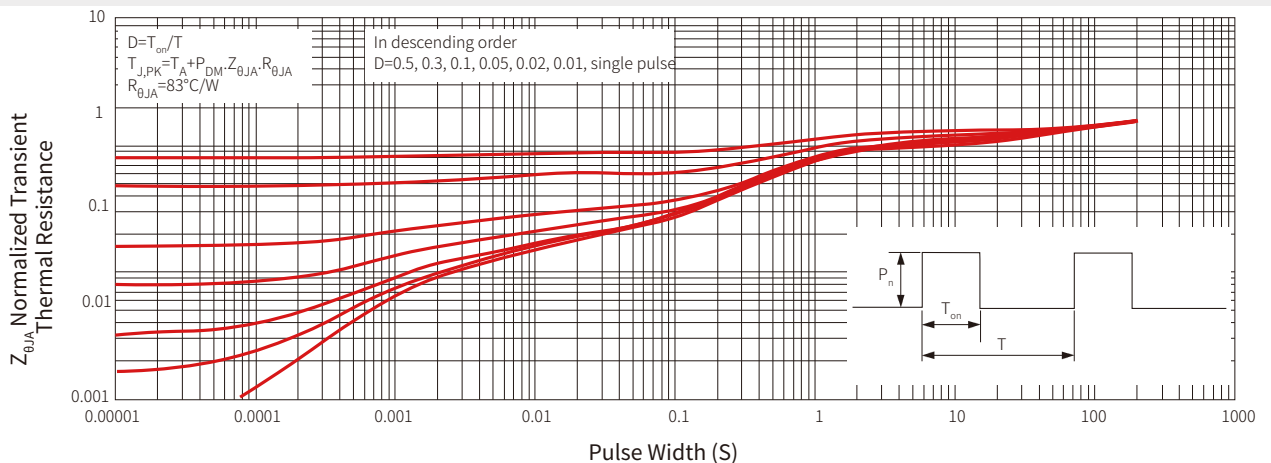
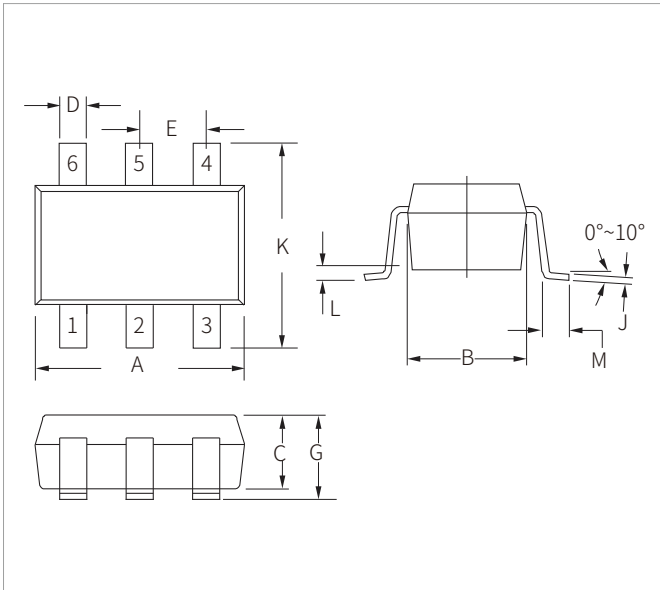


Figure 11: Normalized Maximum Transient Thermal Impedance

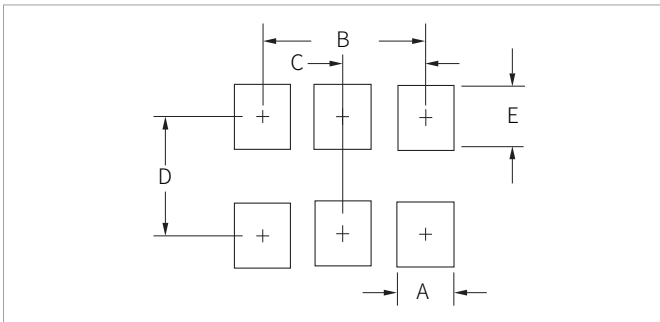


SOT-23-6 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.10	0.110	0.125
B	1.50	1.80	0.059	0.071
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
SNM2013G	SOT-23-6	3000PCS	7"

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

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