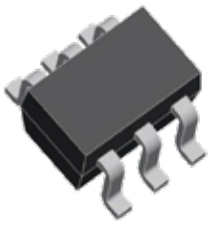
FEATURES

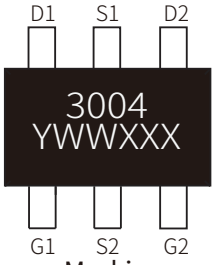
- Surface-mounted package
- Advanced trench cell design



SOT-23-6L

APPLICATION

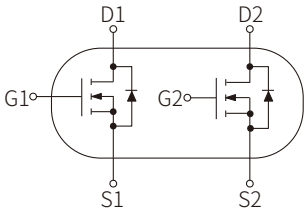
- Portable appliances
- High speed switch
- Battery management
- Low power DC to DC Converter



Marking

APPROVALS

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



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage T_A=25°C		V_{DS}	30	V
Pulsed Drain Current T_A=25°C,V_{GS}=10V		I_{DM}*,**	17.6	A
Drain Current (DC)	T_A=25°C,V_{GS}=10V	I_D*	4.4	A
	T_A=100°C,V_{GS}=10V		2.8	
Gate-Source Voltage T_A=25°C		V_{GS}	±20	V
Total Power Dissipation T_A=25°C		P_{tot}	0.83	W
Diode Forward Current T_A=25°C		I_S*	4.4	A
Junction Temperature		T_J	-55 to 150	°C
Storage Temperature		T_{STG}	-55 to 150	°C
Thermal Resistance- Junction to Ambient		$R_{\theta JA}$*	150	°C/W

Notes:
* Surface Mounted on 1 in^2 pad area, t≤10 sec
** Pulse width≤300μs, duty cycle≤ 2 %

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	1		2	V
Drain Leakage Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±100	nA
On-State Resistance	$R_{DS(on)}$[a]	V_{GS}=10V,I_{DS}=3A		23	27	mΩ
		V_{GS}=4.5V,I_{DS}=2A		37	45	mΩ
Diode Characteristics						
Diode Forward Voltage	V_{SD}[a]	I_{SD}=3A,V_{GS}=0V			1.3	V
Reverse Recovery Time	t_{rr}	I_{SD}=3A dI_{SD}/dt=100A/μs		5.9		nS
Reverse Recovery Charge	Q_{rr}			2.4		nC
Dynamic Characteristics[b]						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=15V, Frequency = 1 MHz		363		pF
Output capacitance	C_{oss}			49		pF
Reverse transfer capacitance	C_{rss}			39		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=15V,V_{GEN}=10V R_G= 3.9Ω, R_L=5Ω, I_{DS}=3A		3.9		nS
Turn-on Rise Time	t_r			8.8		nS
Turn-Off Delay Time	$t_{d(off)}$			10		nS
Turn-Off Fall Time	t_f			3.7		nS
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=15V,I_{DS}=3A		7.2		nC
Gate-Source Charge	Q_{gs}			1.7		nC
Gate-Drain Charge	Q_{gd}			1		nC

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

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

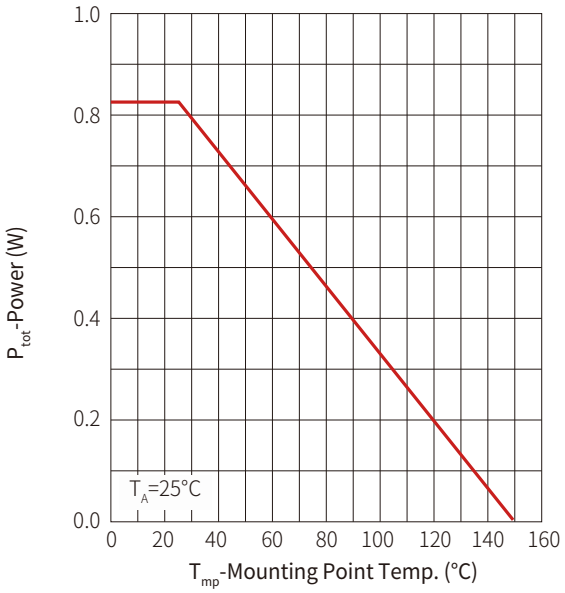


Figure2: Current Capability

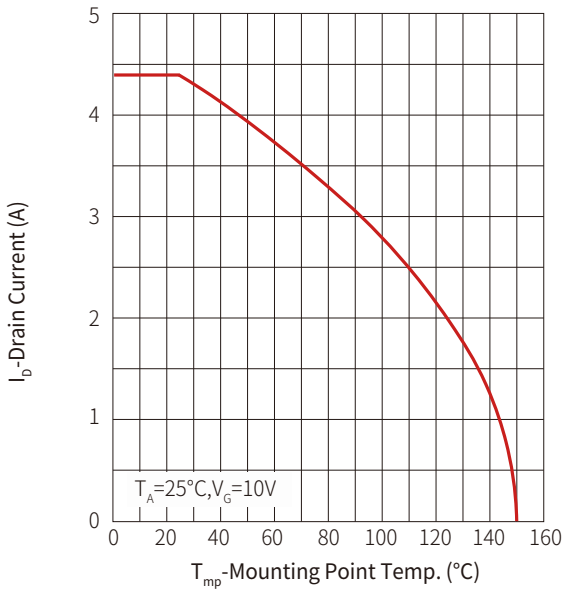


Figure3: Safe Operating Area

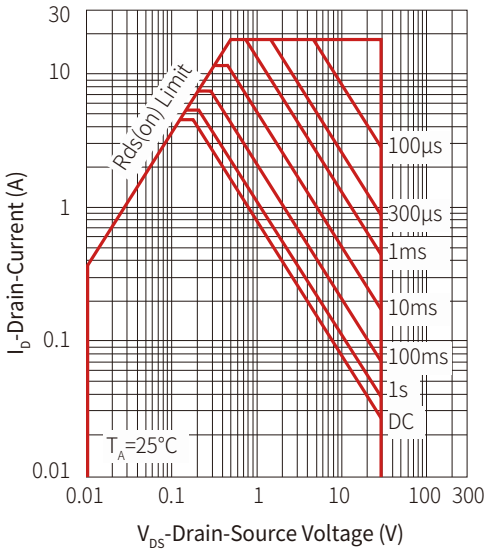


Figure 4: Transient Thermal Impedance

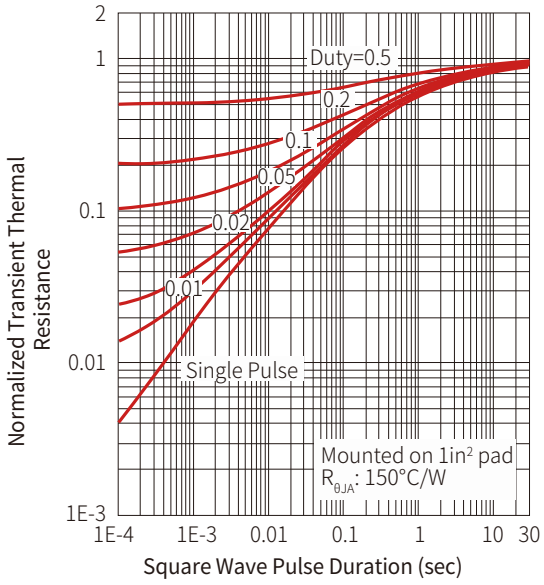


Figure 5:Output Characteristics

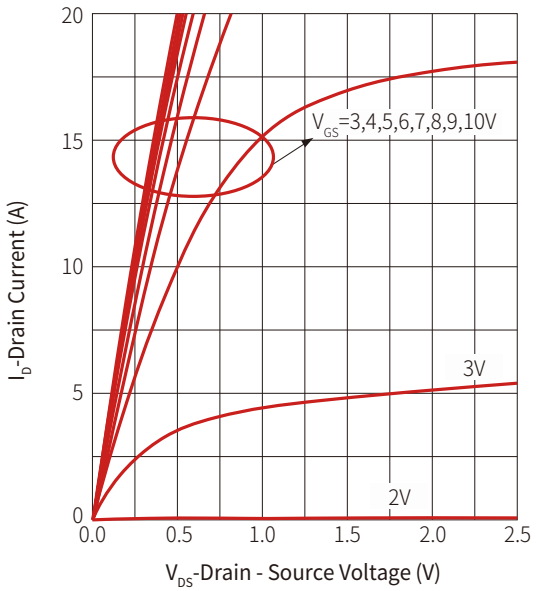


Figure 6: On Resistance

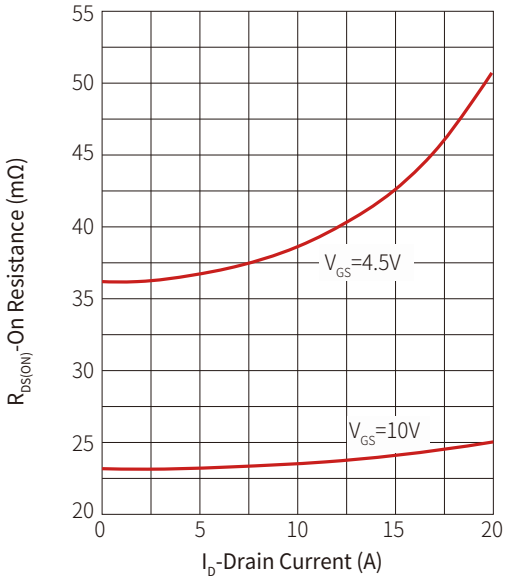


Figure 7:Transfer Characteristics

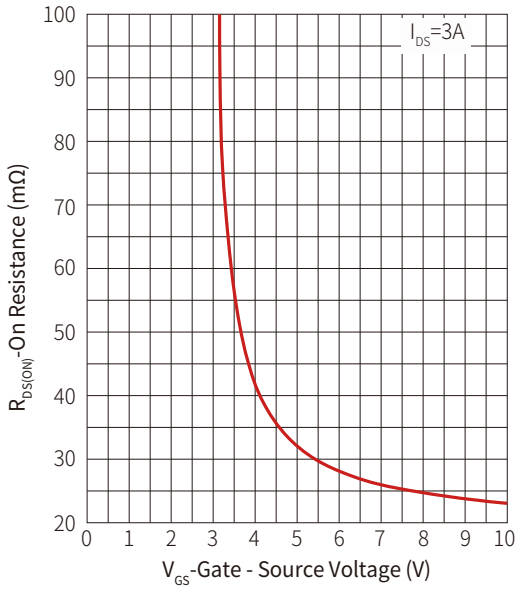


Figure 8: Normalized Threshold Voltage

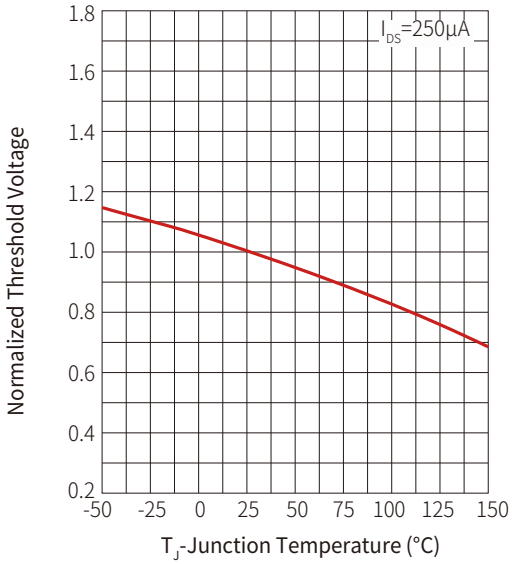


Figure 9:Normalized On Resistance

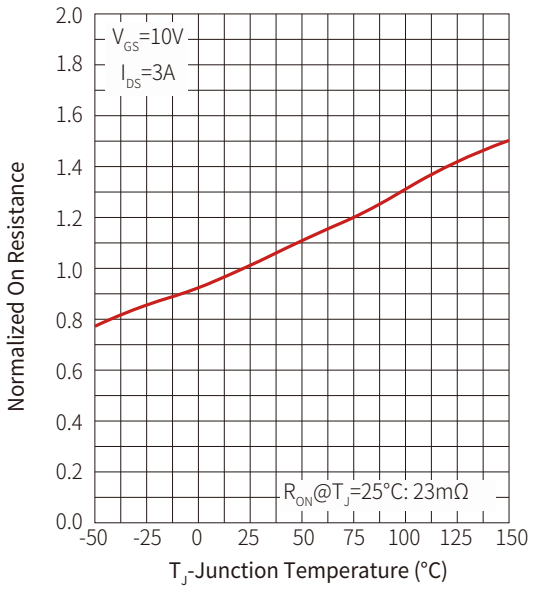


Figure 10: Diode Forward Current

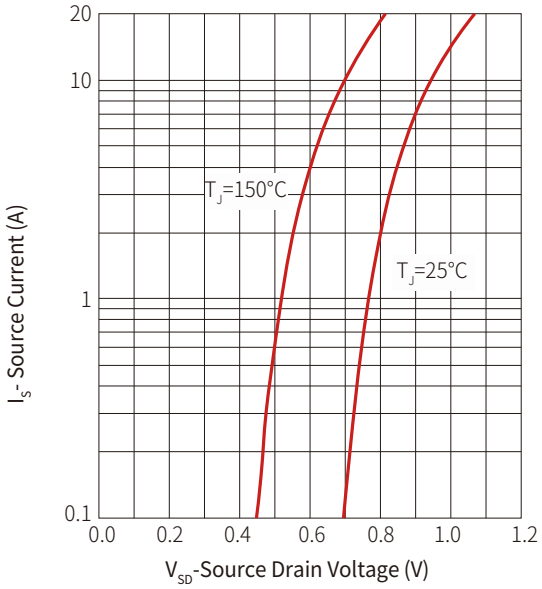


Figure 11:Capacitance

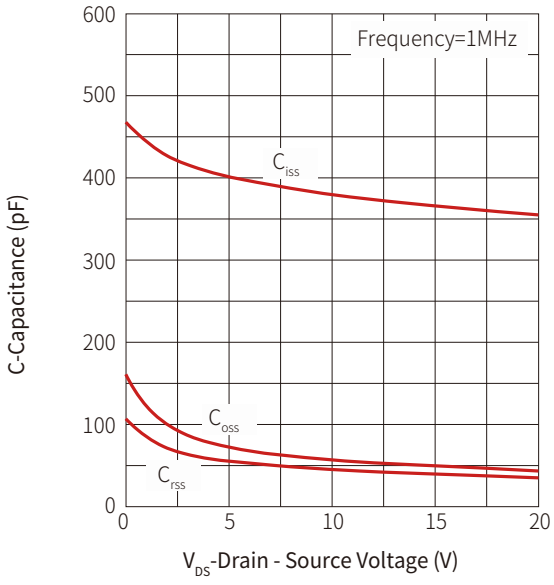
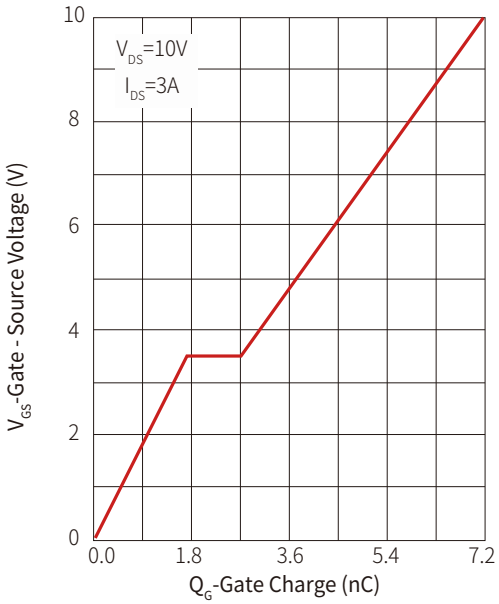
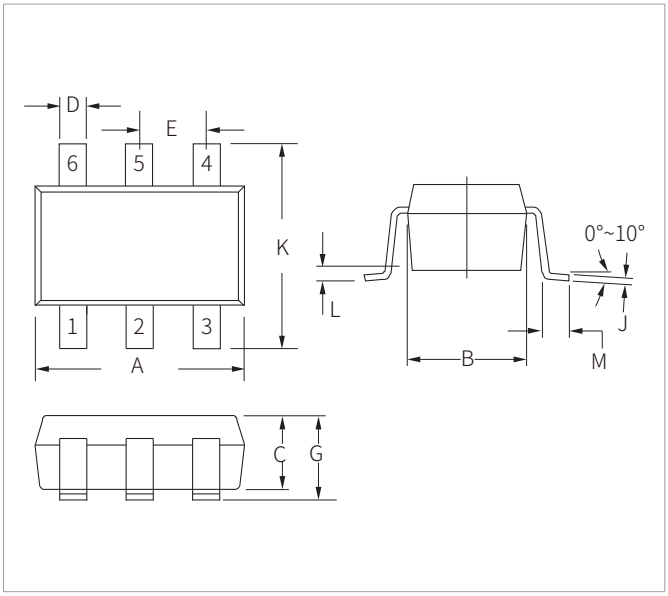


Figure 12: Gate Charge

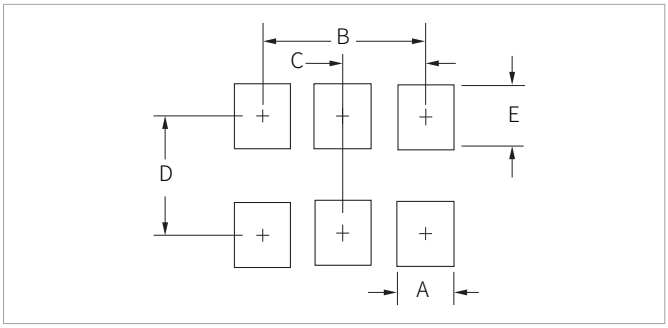


SOT-23-6L PACKAGE INFORMATION



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
SNNM3004S	SOT-23-6L	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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