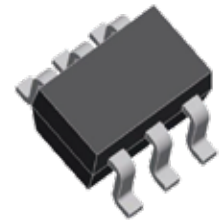


## FEATURES

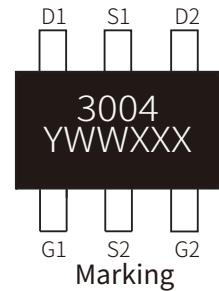
- | Surface-mounted package
- | Advanced trench cell design



SOT-23-6L

## APPLICATION

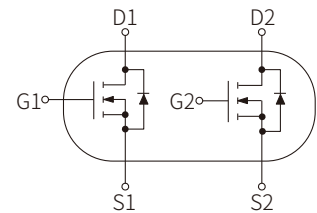
- | Portable appliances
- | High speed switch
- | Battery management
- | Low power DC to DC Converter



Marking

## APPROVALS

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



Schematic Symbol

## ABSOLUTE MAXIMUM RATINGS

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

Notes:

 \* Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10$  sec

 \*\* Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA	30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA	1		2	V
Drain Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V			1	μA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
On-State Resistance	R <sub>DS(on)</sub> <sup>a</sup>	V <sub>GS</sub> =10V, I <sub>DS</sub> =3A		23	27	mΩ
		V <sub>GS</sub> =4.5V, I <sub>DS</sub> =2A		37	45	mΩ
<b>Diode Characteristics</b>						
Diode Forward Voltage	V <sub>SD</sub> <sup>a</sup>	I <sub>SD</sub> =3A, V <sub>GS</sub> =0V			1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>SD</sub> =3A dI <sub>SD</sub> /dt=100A/μs		5.9		nS
Reverse Recovery Charge	Q <sub>rr</sub>			2.4		nC
<b>Dynamic Characteristics<sup>b</sup></b>						
Input capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, Frequency = 1 MHz		363		pF
Output capacitance	C <sub>oss</sub>			49		pF
Reverse transfer capacitance	C <sub>rss</sub>			39		pF
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =15V, V <sub>GEN</sub> =10V R <sub>G</sub> =3.9Ω, R <sub>L</sub> =5Ω, I <sub>DS</sub> =3A		3.9		nS
Turn-on Rise Time	t <sub>r</sub>			8.8		nS
Turn-Off Delay Time	t <sub>d(off)</sub>			10		nS
Turn-Off Fall Time	t <sub>f</sub>			3.7		nS
<b>Gate Charge Characteristics<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, I <sub>DS</sub> =3A		7.2		nC
Gate-Source Charge	Q <sub>gs</sub>			1.7		nC
Gate-Drain Charge	Q <sub>gd</sub>			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

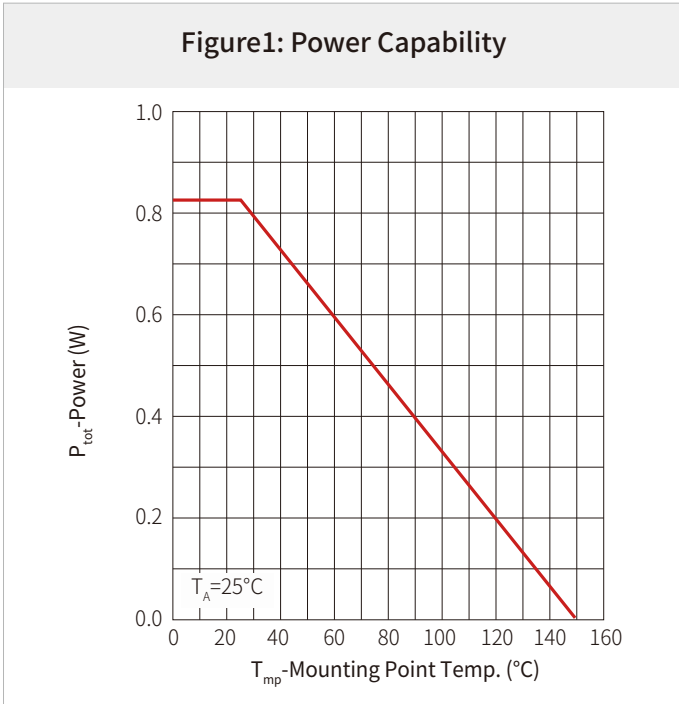


Figure2: Current Capability

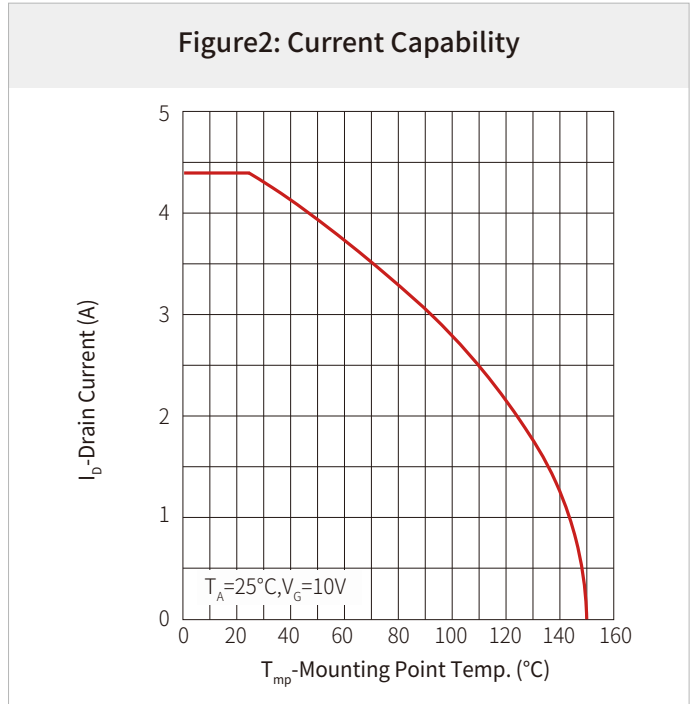


Figure3: Safe Operating Area

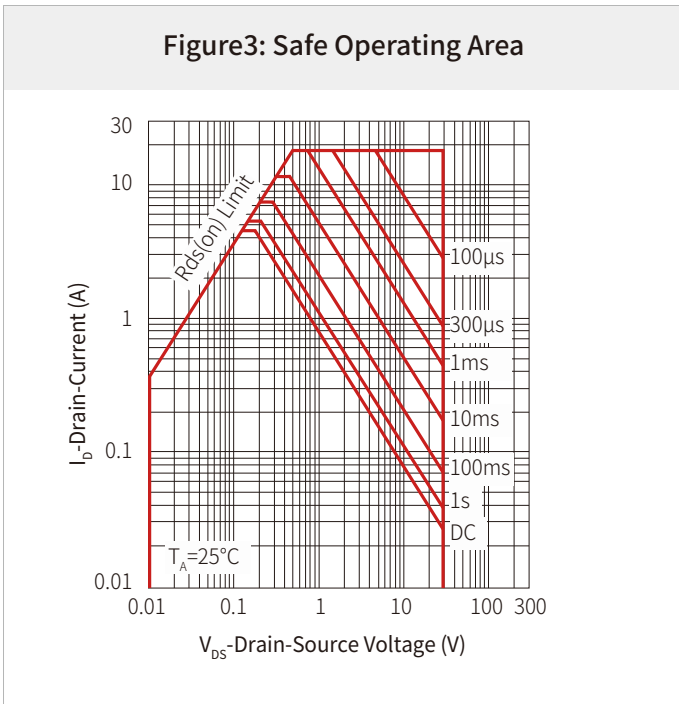
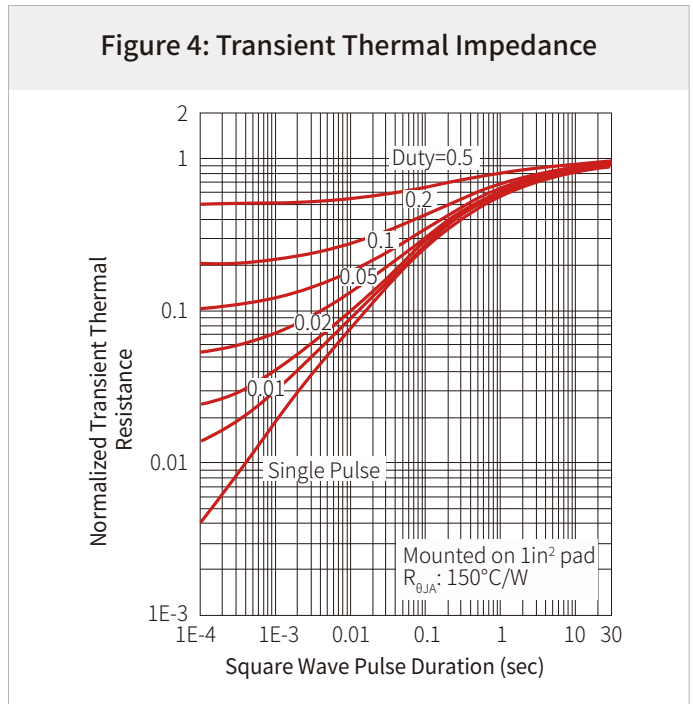
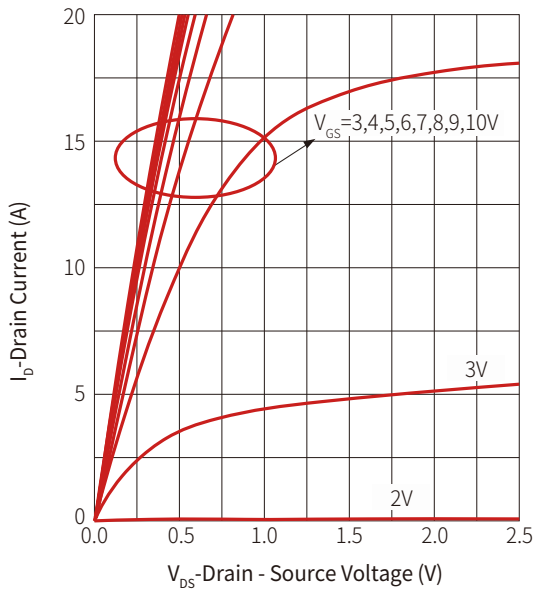


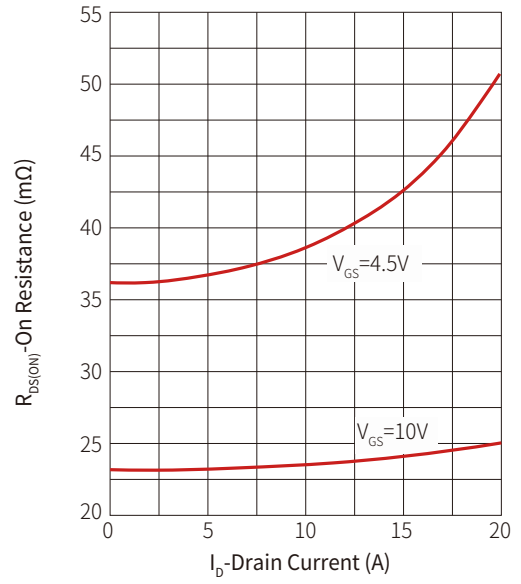
Figure 4: Transient Thermal Impedance



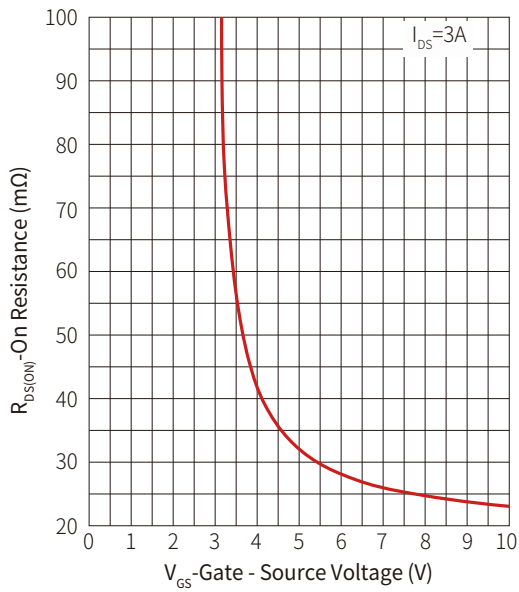
**Figure 5: Output Characteristics**



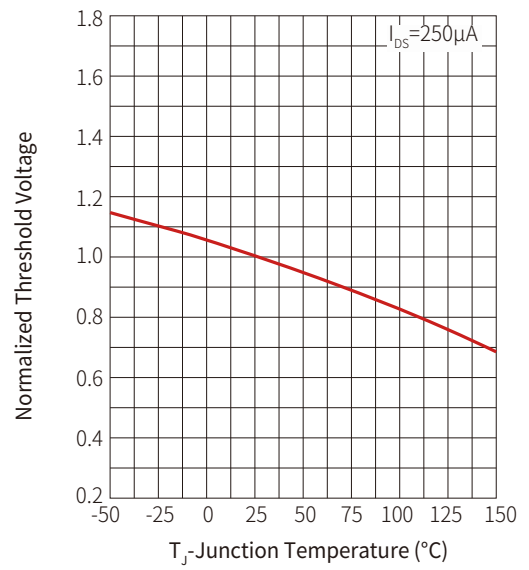
**Figure 6: On Resistance**



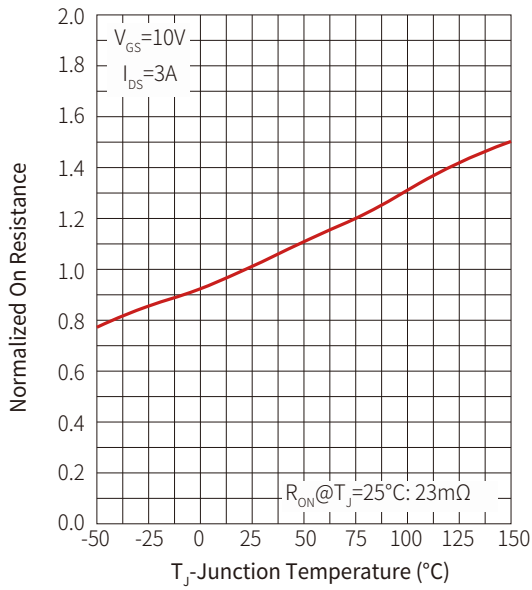
**Figure 7: Transfer Characteristics**



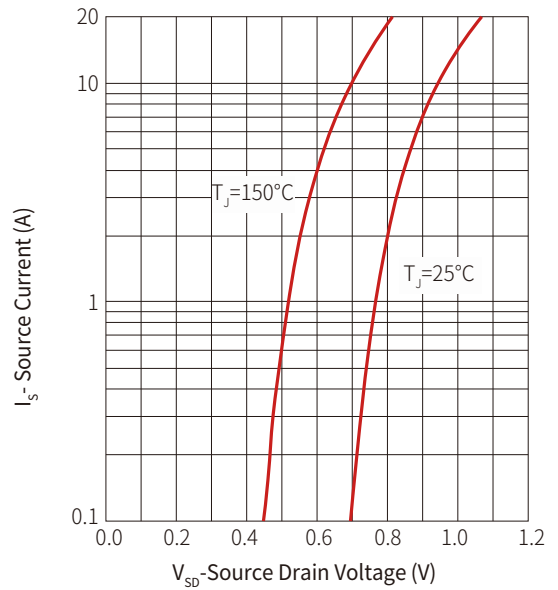
**Figure 8: Normalized Threshold Voltage**



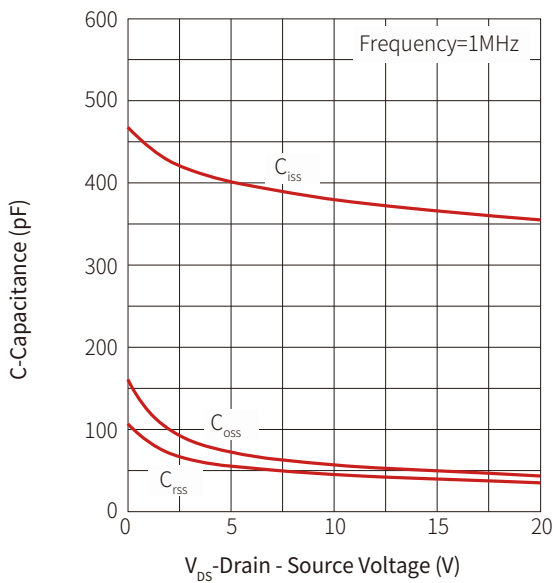
**Figure 9: Normalized On Resistance**



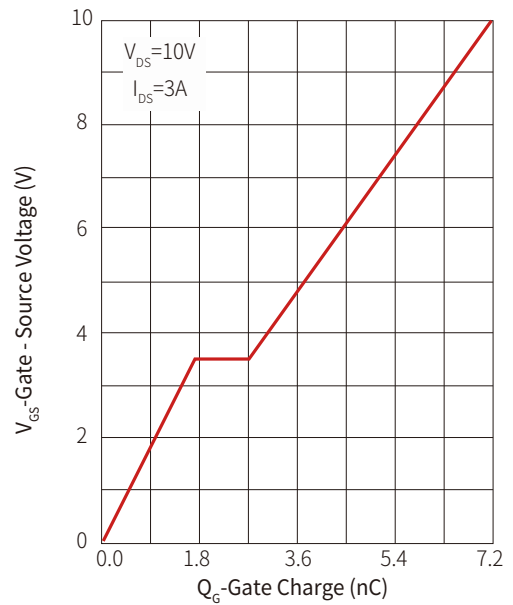
**Figure 10: Diode Forward Current**



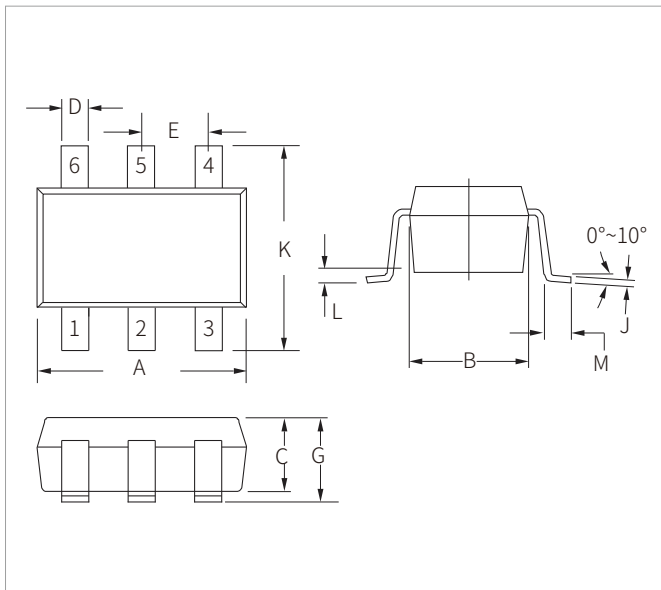
**Figure 11: Capacitance**



**Figure 12: Gate Charge**

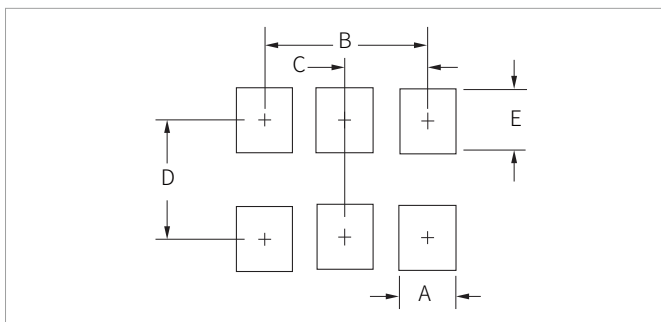


## SOT-23-6L PACKAGE INFORMATION



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"

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