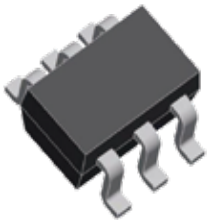
FEATURES

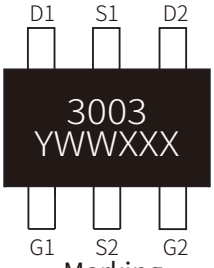
- Surface-mounted package
- Advanced trench cell design



SOT-23-6L

APPLICATION

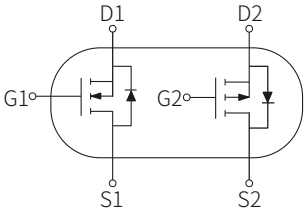
- MB and NB
- Motor drivers
- Half – bridge Drivers



Marking

APPROVALS

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



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS(T_a=25°C)

Parameter		Symbol	Value		Unit
			N-channel	P-channel	
Drain-Source Voltage T_A=25°C		V_{DS}	30	-30	V
Drain Current	T_A=25°C	I_D*	4.2	-4.2	A
	T_A=100°C		2.6	-1.8	A
Drain Current - Pulsed T_A=25°C		I_{DM}*,**	16.8	-12	A
Gate-Source Voltage		V_{GS}	±20	±20	V
Power DissipationT_A = 25°C		P_{tot}	0.83		W
Operating and Storage Temperature Range		T_J,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)

N-Channel

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	30			V
Zero Gate Voltage Source Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	1		2	V
Drain-Source On-State Resistance	$R_{DS(on)}$ [a]	V_{GS}=10V,I_D=3A		23.8	28	mΩ
		V_{GS}=4.5V,I_D=2A		35.4	46	
Diode Characteristics						
Diode Forward Voltage	V_{SD} [a]	V_{GS}=0V,I_{SD}=3A			1.3	V
Reverse Recovery Time	t_{rr}	I_{SD} = 3A, dI_{SD}/dt = 100 A/μs		5.7		nS
Reverse Recovery Charge	Q_{rr}			2		nC
Dynamic Characteristics[b]						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V Frequency = 1 MHz		396		pF
Output Capacitance	C_{oss}			49		
Reverse Transfer Capacitance	C_{rss}			36		
Turn–On Delay Time	$t_{d(on)}$	V_{DS}=15V,R_L=5Ω V_{GEN}=10V,R_G=3.9Ω,I_D = 3A		4.2		nS
Turn–On Rise Time	t_r			9.2		
Turn–Off Delay Time	$t_{d(off)}$			12		
Turn–Off Fall Time	t_f			4.6		
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=15V,I_{DS}=3A		8.1		nC
Gate Source Charge	Q_{gs}			2		
Gate Drain Charge	Q_{gd}			1.1		

P-Channel

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=-250μA	-30			V
Zero Gate Voltage Source Current	I_{DSS}	V_{DS}=-24V,V_{GS}=0V			-1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=-250μA	-1		-2	V
Drain-Source On-State Resistance	$R_{DS(on)}$ [a]	V_{GS}=-10V,I_D=-3A		53.8	60	mΩ
		V_{GS}=-4.5V,I_D=-2A		88.7	98	
Diode Characteristics						
Diode Forward Voltage	V_{SD} [a]	V_{GS}=0V,I_{SD}=-3A			-1.3	V
Reverse Recovery Time	t_{rr}	I_{SD} = -3A, dI_{SD}/dt = 100 A/μs		8.4		nS
Reverse Recovery Charge	Q_{rr}			3.9		nC
Dynamic Characteristics[b]						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V Frequency = 1 MHz		475		pF
Output Capacitance	C_{oss}			50		
Reverse Transfer Capacitance	C_{rss}			43		
Turn–On Delay Time	$t_{d(on)}$	V_{DS}=-15V,R_L=5Ω V_{GEN}=-10V,R_G=3.9Ω,I_{DS} = -3A		4.1		nS
Turn–On Rise Time	t_r			10		
Turn–Off Delay Time	$t_{d(off)}$			35		
Turn–Off Fall Time	t_f			18		
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-15V,I_{DS}=-3A		9.2		nC
Gate Source Charge	Q_{gs}			2.4		
Gate Drain Charge	Q_{gd}			1.1		

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

PARAMETER CHARACTERISTIC CURVE

N-Channel

Figure1: Power Capability

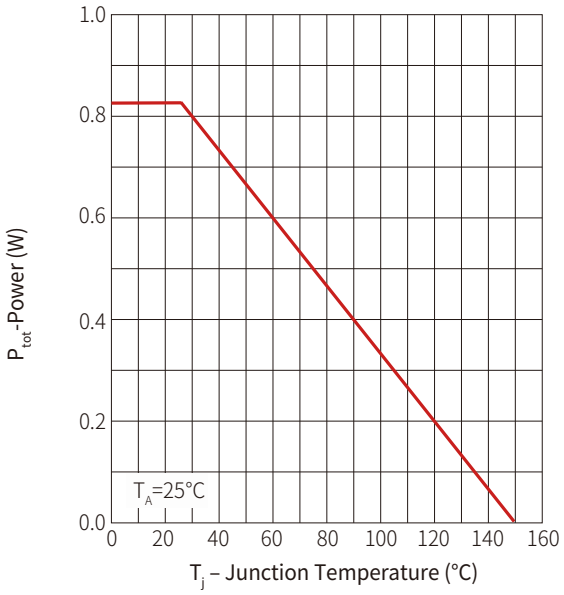


Figure2: Current Capability

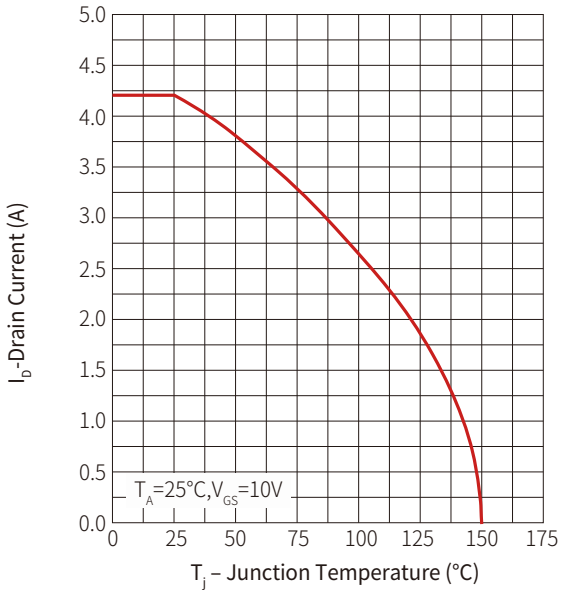


Figure3: Safe Operation Area

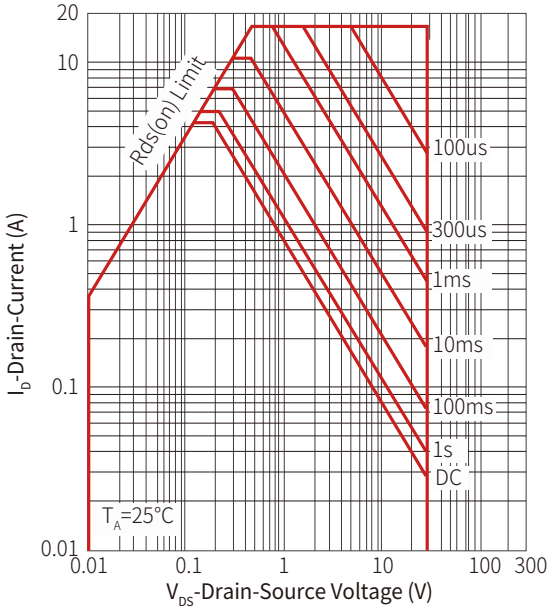


Figure 4: Transient Thermal Impedance

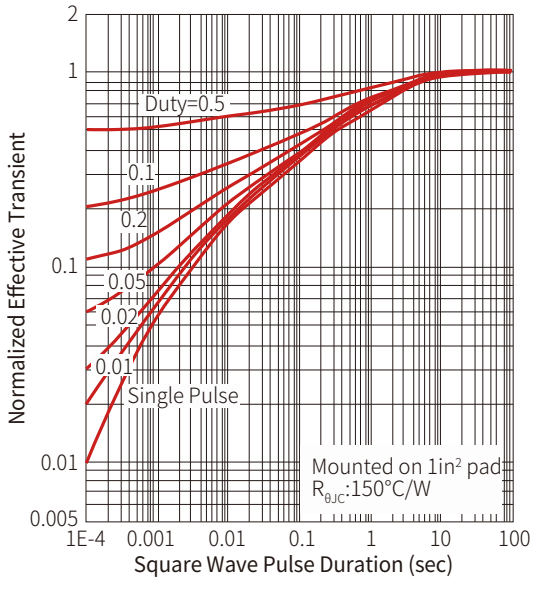


Figure 5:Output Characteristics

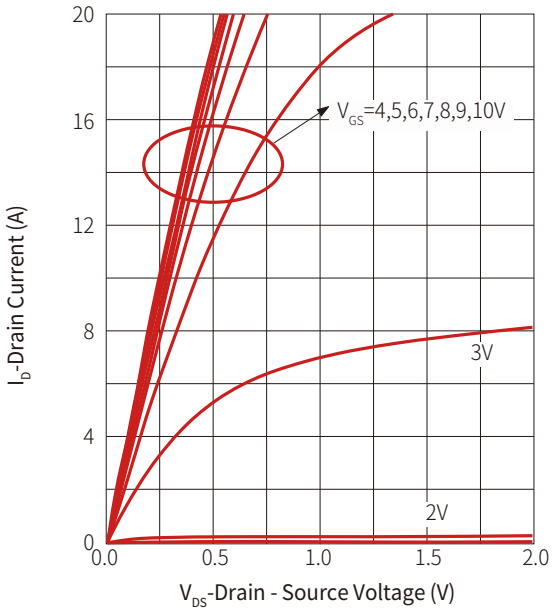


Figure 6: On Resistance

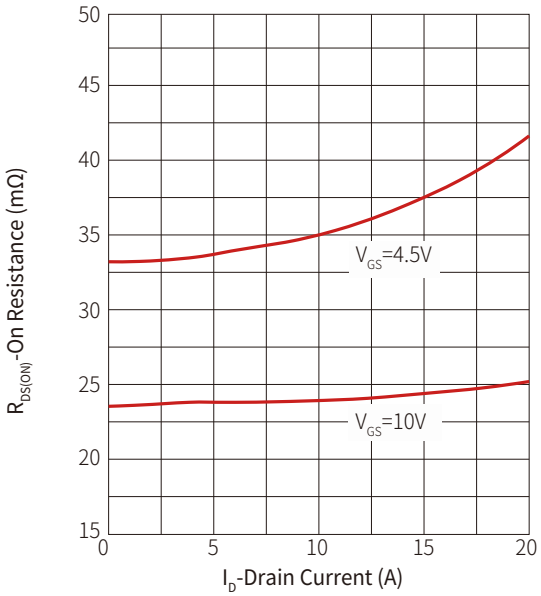


Figure 7:Transfer Characteristics

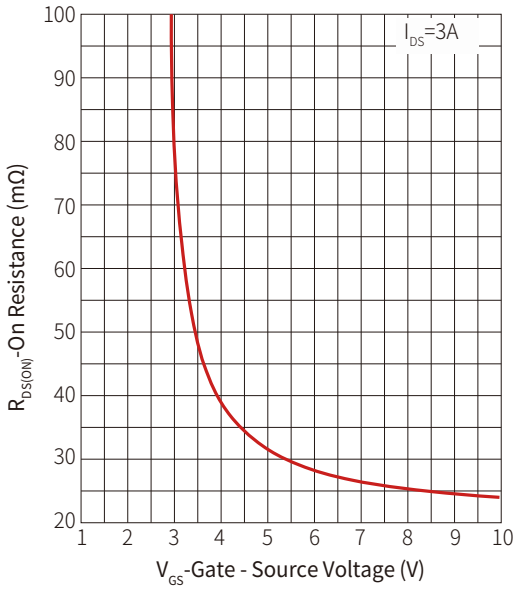


Figure 8: Normalized Threshold Voltage

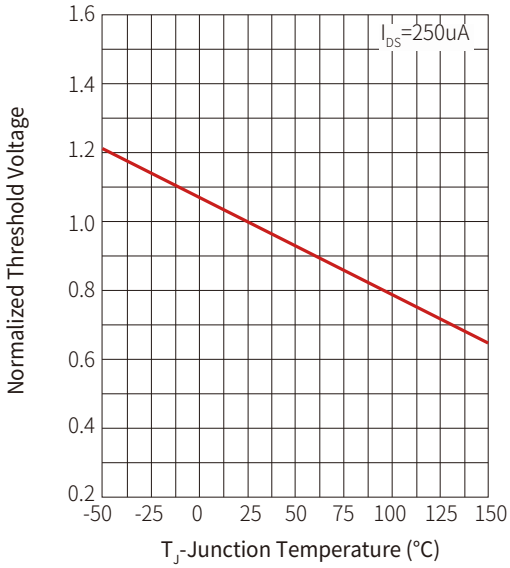


Figure 9:Normalized On Resistance

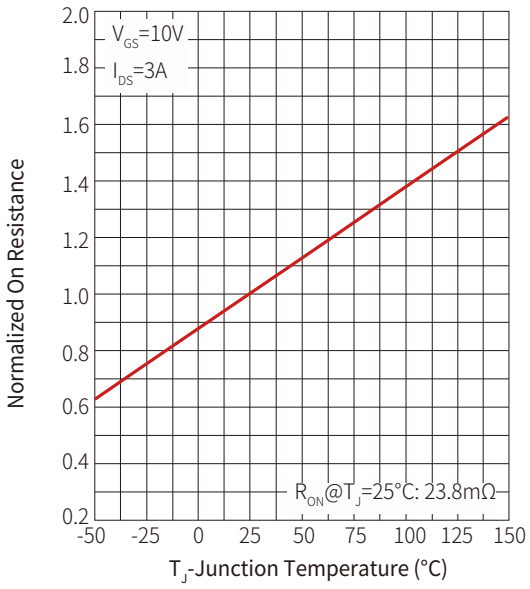


Figure 10: Diode Forward Current

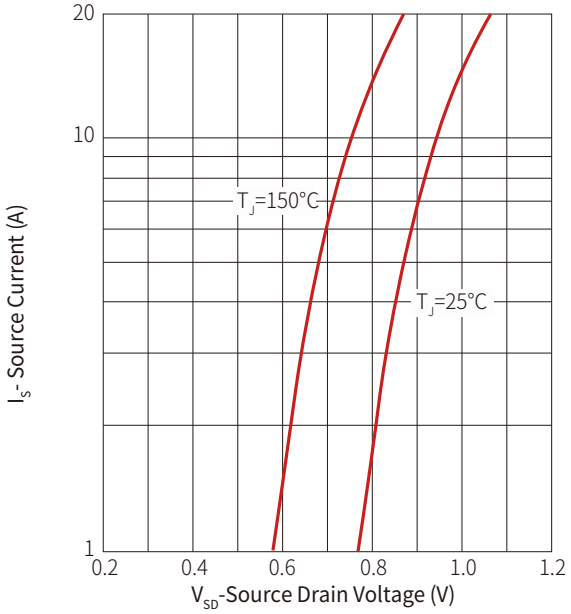


Figure 11:Capacitance

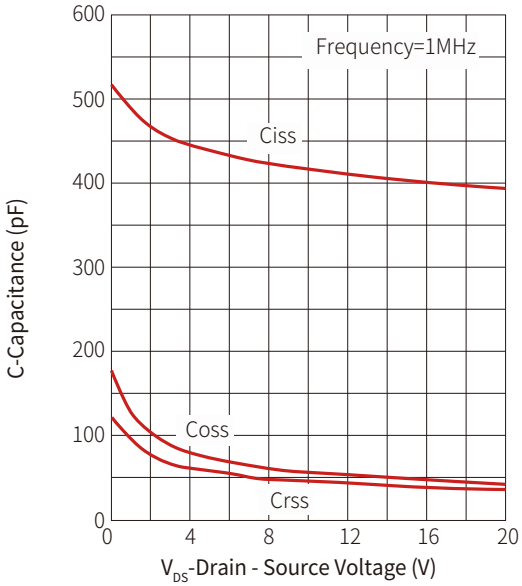
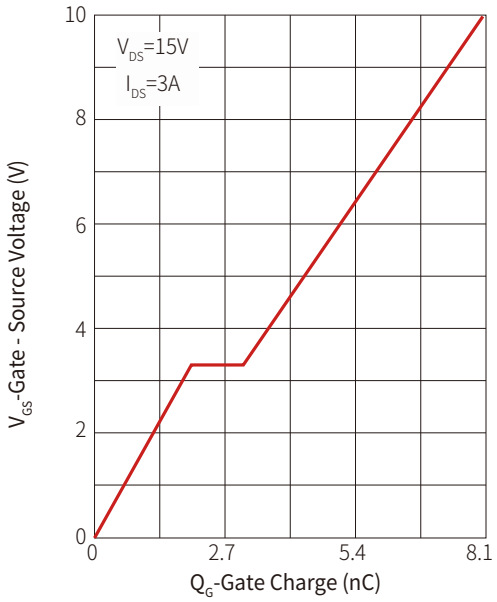


Figure 12: Gate Charge



P-Channel

Figure1: Power Capability

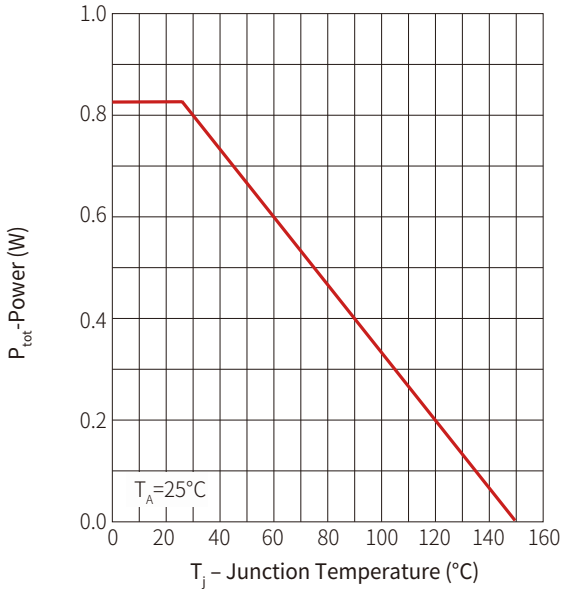


Figure2: Current Capability

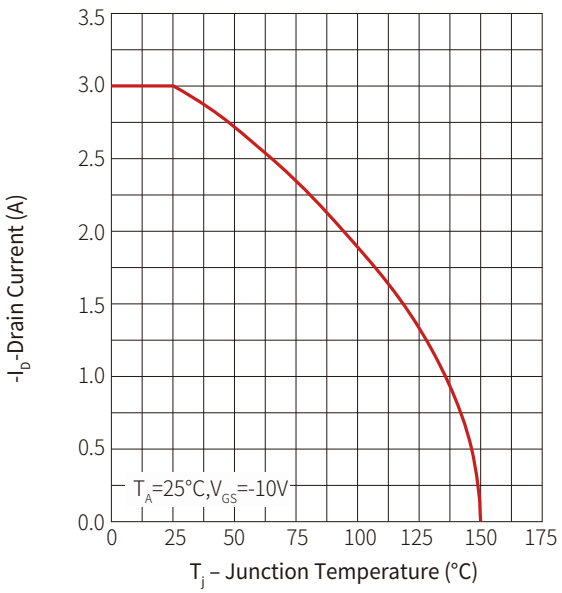


Figure3: Safe Operation Area

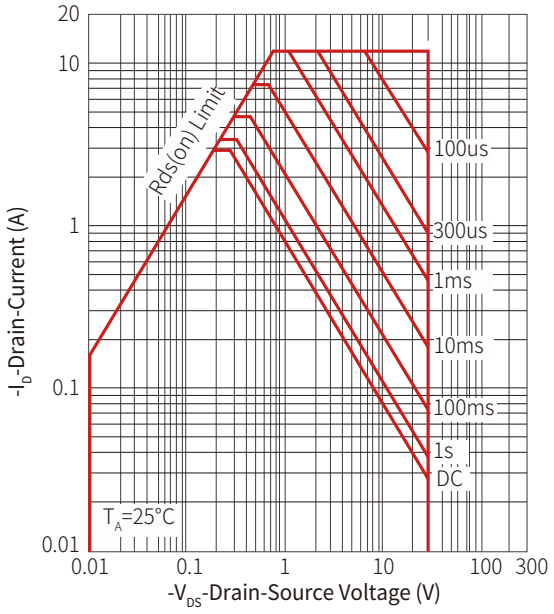


Figure 4: Transient Thermal Impedance

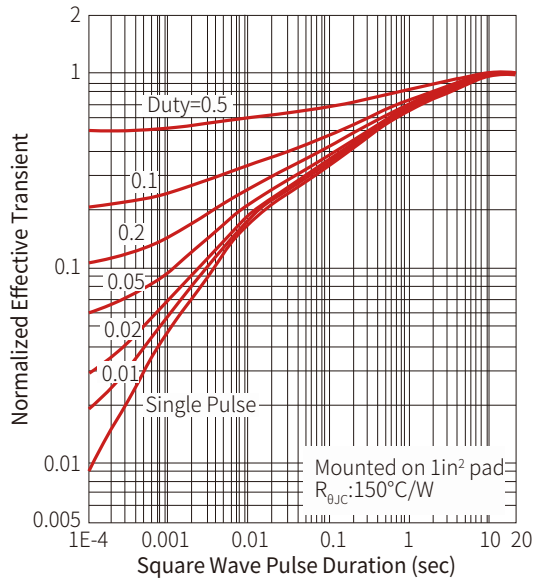


Figure 5:Output Characteristics

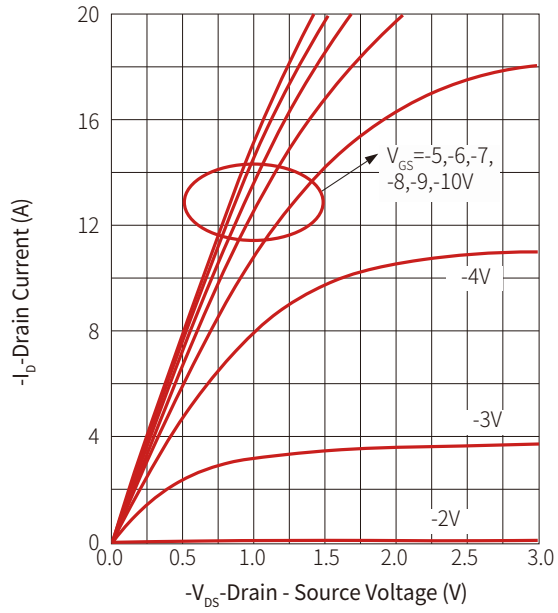


Figure 6: On Resistance

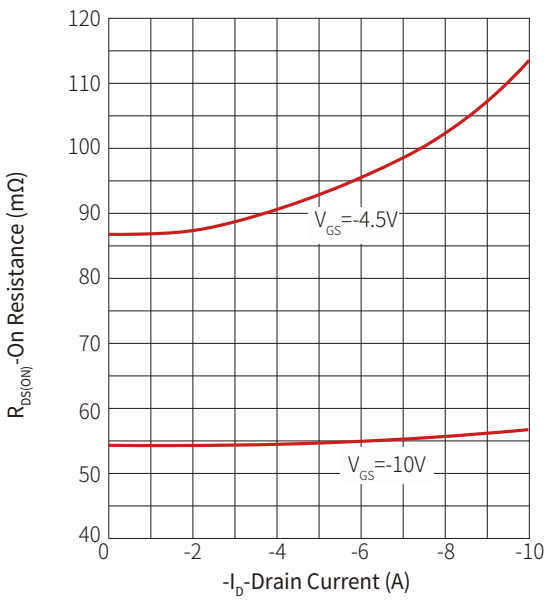


Figure 7:Transfer Characteristics

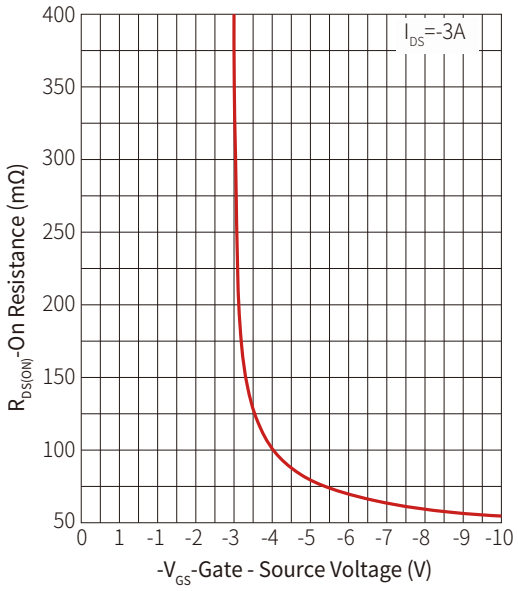


Figure 8: Normalized Threshold Voltage

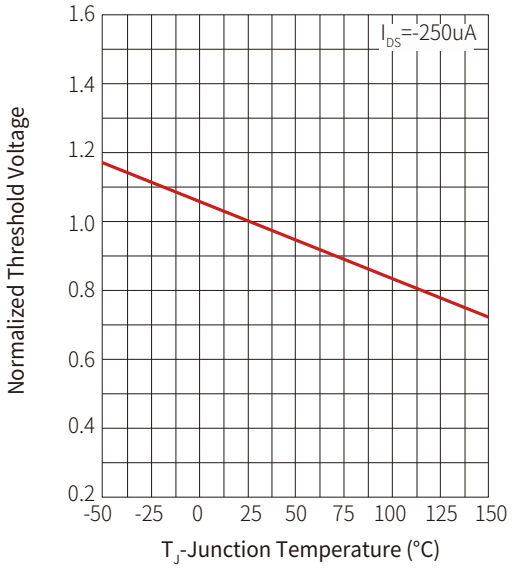


Figure 9:Normalized On Resistance

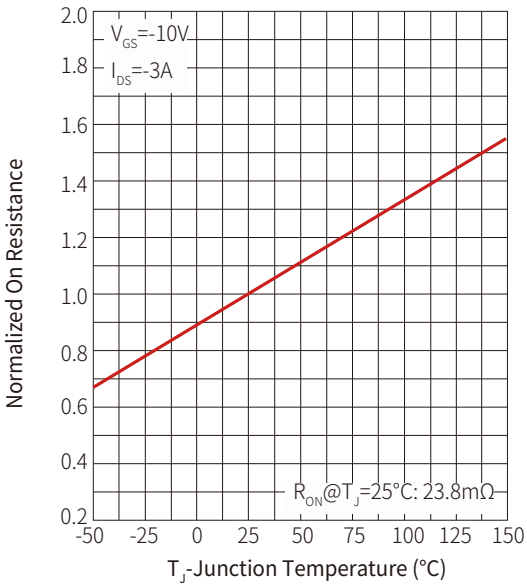


Figure 10: Diode Forward Current

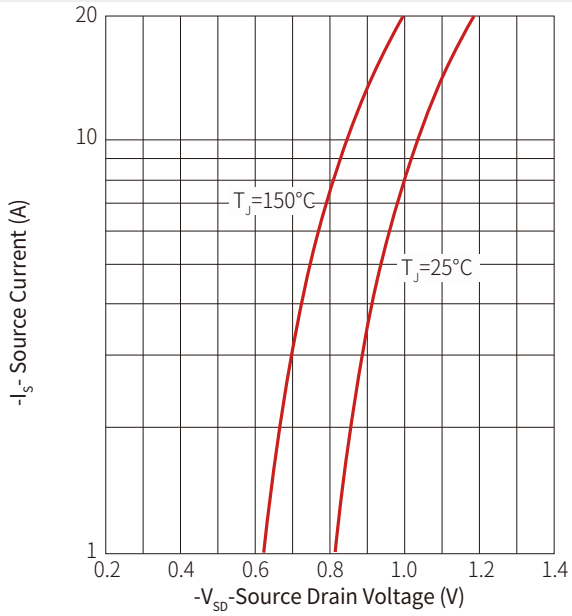


Figure 11:Capacitance

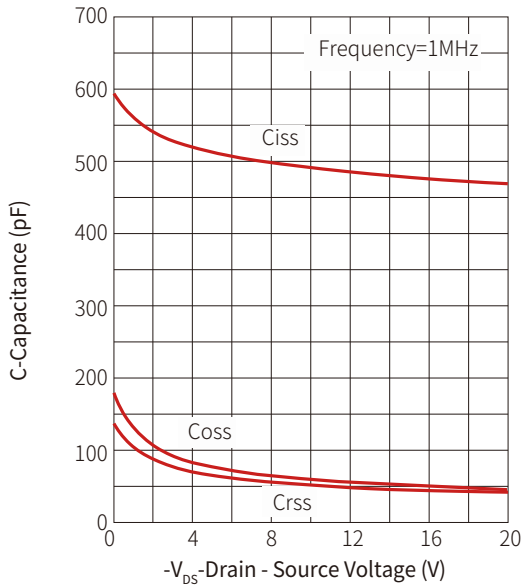
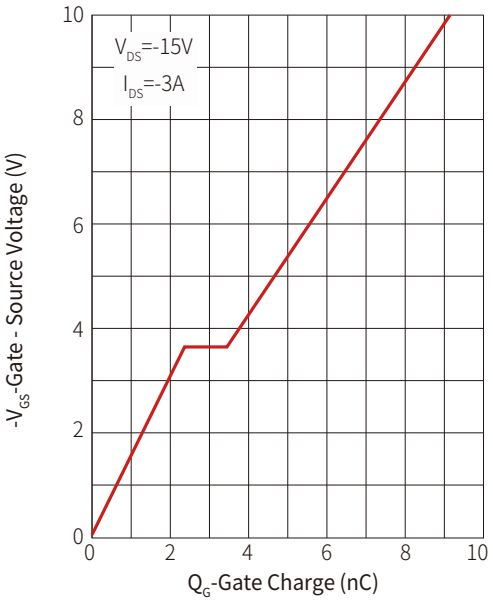
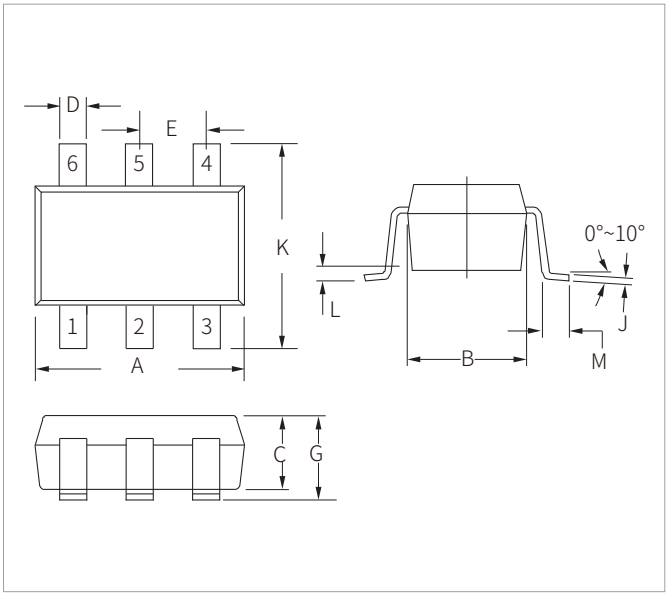


Figure 12: Gate Charge

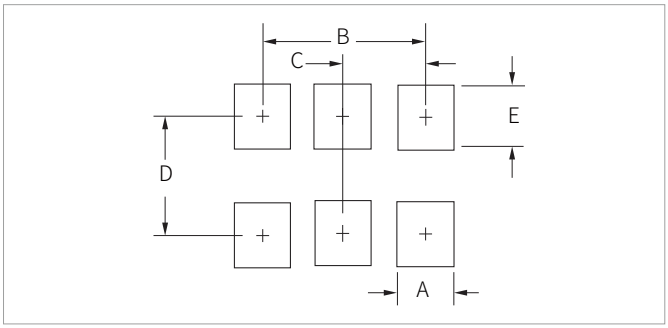


SOT-23-6L PACKAGE INFORMATION



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
SNPM3003CS	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

By QR Code
Website
Wechat

To find your local partner within Semiware' s global website: www.semiware.com