

FEATURES

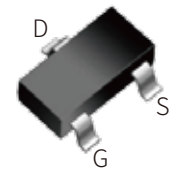
- | Green Device Available

- | Super Low Gate Charge

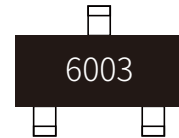
- | Excellent CdV/dt effect decline

- | Advanced high cell density Trench technology

- | Meet AEC-Q101 Requirements



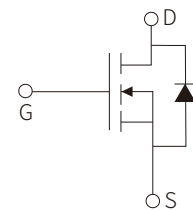
SOT-23



Marking

APPROVALS

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



Schematic Symbol

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Continuous Drain Current @10V	I_D	$T_A=25^{\circ}\text{C}$	5.0
		$T_A=70^{\circ}\text{C}$	1.8
Pulsed Drain Current	I_{DM}	20	A
Gate Source Voltage	V_{GS}	± 20	V
Total Power Dissipation $T_A=25^{\circ}\text{C}$	P_D	1	W
Thermal Resistance Junction-ambient	$R_{\theta JA}$	125	$^{\circ}\text{C}/\text{W}$
Thermal Resistance Junction-Case	$R_{\theta JC}$	80	$^{\circ}\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	60			V
BVDSS Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =1mA		0.054		V/°C
Drain Leakage Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V, T _J =25°C			1	μA
		V _{DS} =48V, V _{GS} =0V, T _J =55°C			5	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	0.8		1.5	V
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA		-4.96		mV/°C
On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =2A		65	85	mΩ
		V _{GS} =4.5V, I _D =1A		76	106	
Forward Transconductance	gfs	V _{DS} =5V, I _D =2A		13		S
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz		280		pF
Output Capacitance	C _{oss}			38	53	
Reverse Transfer Capacitance	C _{rss}			25	35	
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V R _G =3.3Ω, I _D =2A		1.6	3.2	ns
Turn-On Rise Time	t _r			7.2	13	
Turn-Off Delay Time	t _{d(off)}			25	50	
Turn-Off Fall Time	t _f			14.4	28.8	
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =48V, I _D =2A		5	7.0	nC
Gate Source Charge	Q _{gs}			1.68	2.4	
Gate Drain Charge	Q _{gd}			1.9	2.7	
Diode Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current			5	A
Pulsed Source Current	I _{SM}				9.2	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25°C			1.2	V
Reverse Recovery Time	t _{rr}	I _F =2A, di/dt=100A/μs, T _J =25°C		9.7		ns
Reverse Recovery Charge	Q _{rr}				5.8	nC

PARAMETER CHARACTERISTIC CURVE

Figure 1: Typical Output Characteristics

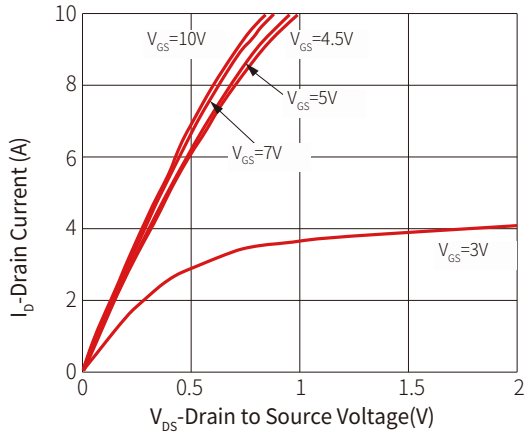


Figure 2: On-Resistance v.s Gate-Source

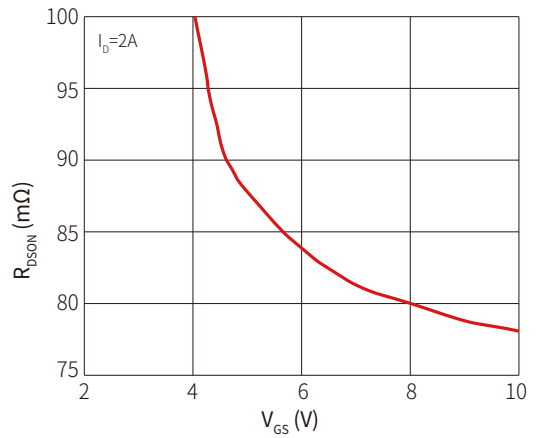


Figure 3: Forward Characteristics of Reverse

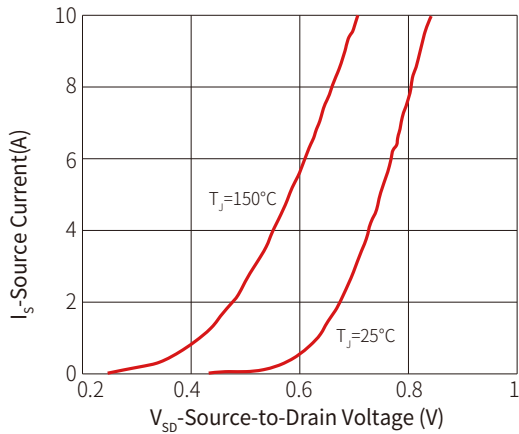


Figure 4: Gate-charge Characteristics

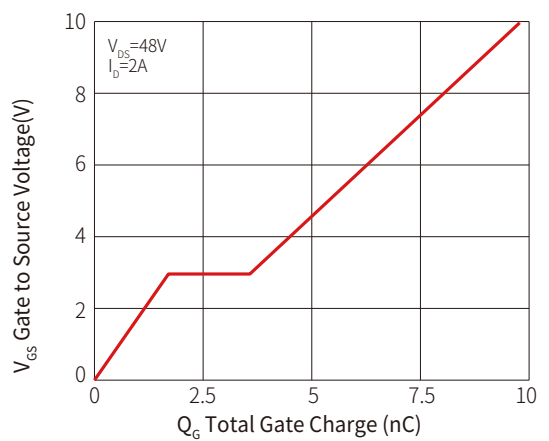


Figure 5: Normalized $V_{GS(th)}$ vs. T_J

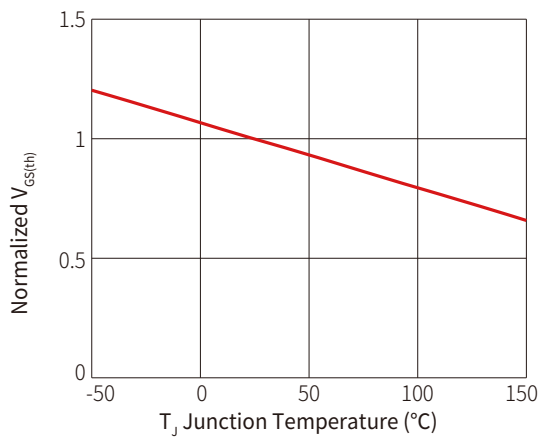


Figure 6: Normalized $R_{DS(on)}$ vs. T_J

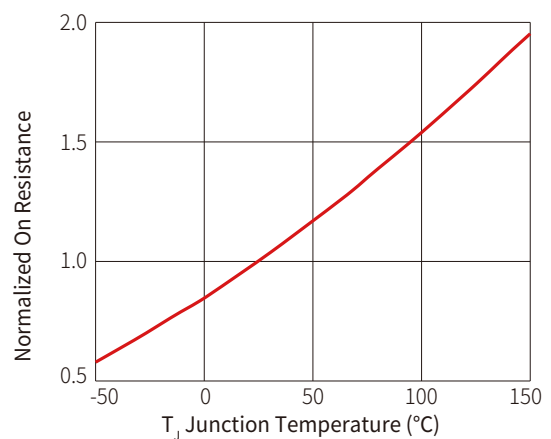


Figure 7: Capacitance

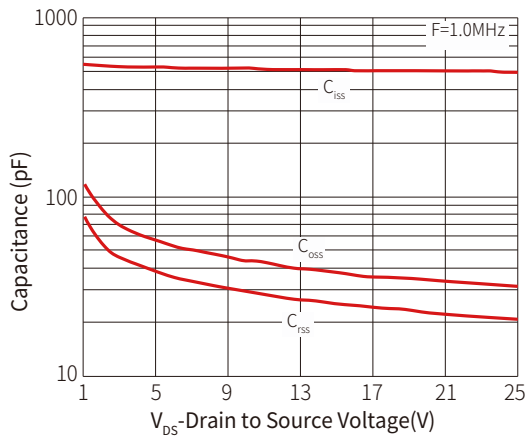


Figure 8: Safe Operating Area

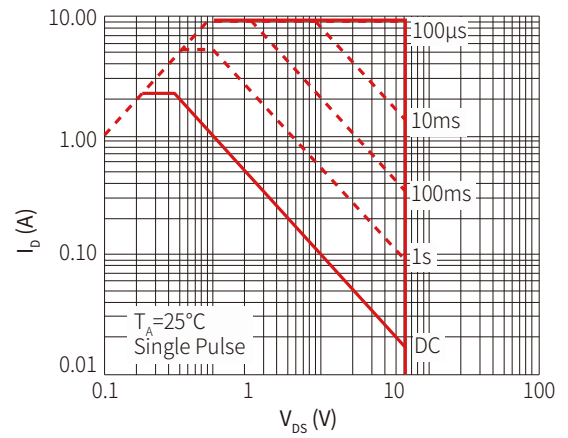
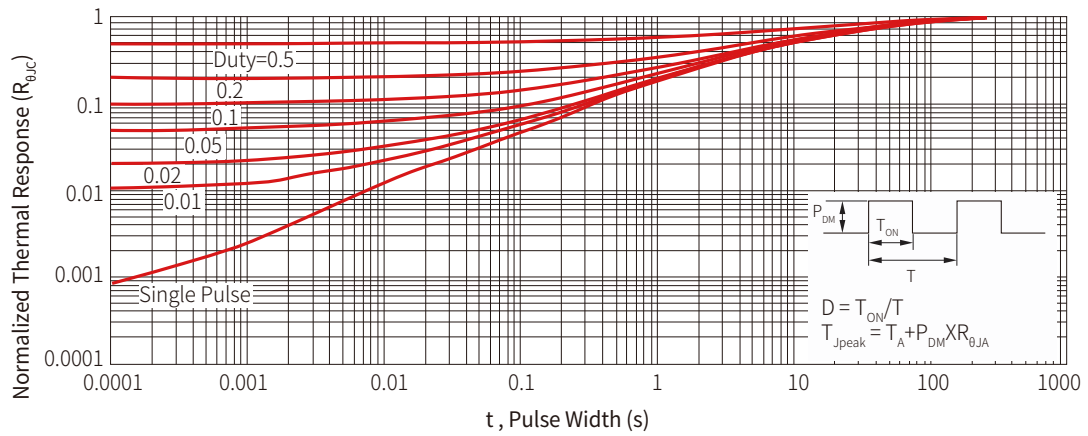
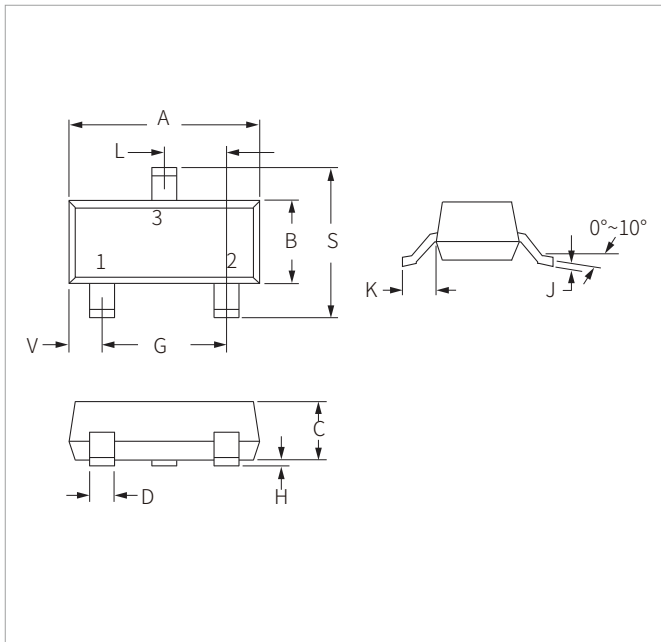


Figure 9: Normalized Maximum Transient Thermal Impedance

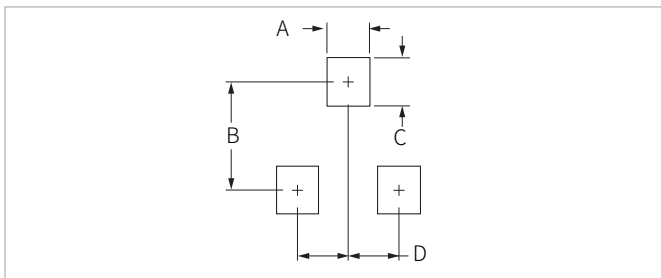


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.60	0.047	0.063
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM6003SQ	SOT-23	3000PCS	7"

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By QR Code

Website



Wechat

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