

FEATURES

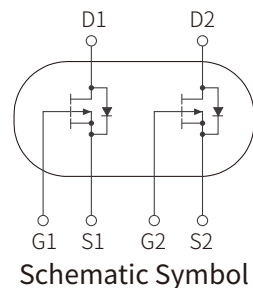
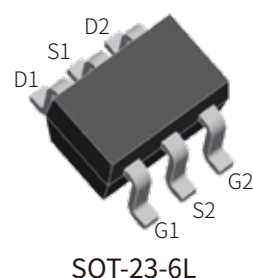
- Surface-mounted package
- Advanced trench cell design

APPLICATION

- LED Display appliances
- High power inverter system
- LCDM appliances

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	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}	$T_A=25^{\circ}\text{C}$	-30	V
Gate-Source Voltage	V_{GS}	$T_A=25^{\circ}\text{C}$	± 20	V
Drain Current (DC)	I_D^*	$T_A=25^{\circ}\text{C}, V_{GS}=-10\text{V}$	-6.3	A
		$T_A=100^{\circ}\text{C}, V_{GS}=-10\text{V}$	-4	A
Pulsed Drain Current	I_{DM}^{***}	$T_A=25^{\circ}\text{C}, V_{GS}=-10\text{V}$	-25	V
Total Power Dissipation	P_{tot}	$T_A=25^{\circ}\text{C}$	2	W
Storage Temperature	T_{STG}		-55 to 150	$^{\circ}\text{C}$
Junction Temperature	T_J		-55 to 150	$^{\circ}\text{C}$
Diode Forward Current	I_S	$T_A=25^{\circ}\text{C}$	-6.3	A
Thermal Resistance- Junction to Ambient	$R_{\theta JA}^*$		62.5	$^{\circ}\text{C/W}$

Notes: * Surface Mounted on 1 in² pad area, $t \leq 10$ sec
 ** Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_{DS}=250\mu A$	-30			V
Drain Leakage Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V$			-1.0	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	-1.0		-2.0	V
On-State Resistance	$R_{DS(on)}^a$	$V_{GS}=-10V, I_{DS}=-6A$		45	55	m Ω
		$V_{GS}=-4.5V, I_{DS}=-3A$		55	65	
Diode Characteristics						
Diode Forward Voltage	V_{SD}^a	$V_{GS}=0V, I_{SD}=-6A$			-1.3	V
Reverse Recovery Time	t_{rr}	$I_{SD} = -6A, dI_{SD}/dt = 100 A/\mu s$		38		ns
Reverse Recovery Charge	Q_{rr}			17		nC
Dynamic Characteristics ^b						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V$ Frequency = 1 MHz		750		pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			75		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-15V, R_L=2.5\Omega$ $V_{GEN}=-10V, R_G=4.5\Omega, I_{DS}=-6A$		7		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			12		
Gate Charge Characteristics ^b						
Total Gate Charge	Q_g	$V_{GS}=-10V, V_{DS}=-15V, I_{DS}=-6A$		9.5		nC
Gate Source Charge	Q_{gs}			2		
Gate Drain Charge	Q_{gd}			3		

Notes: a : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

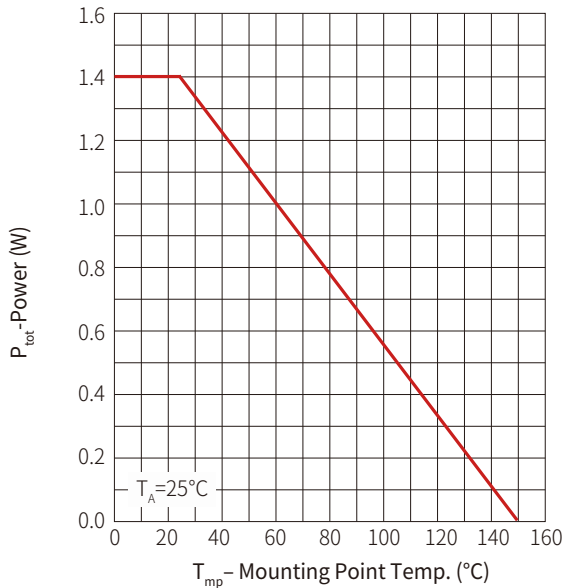


Figure2: Current Capability

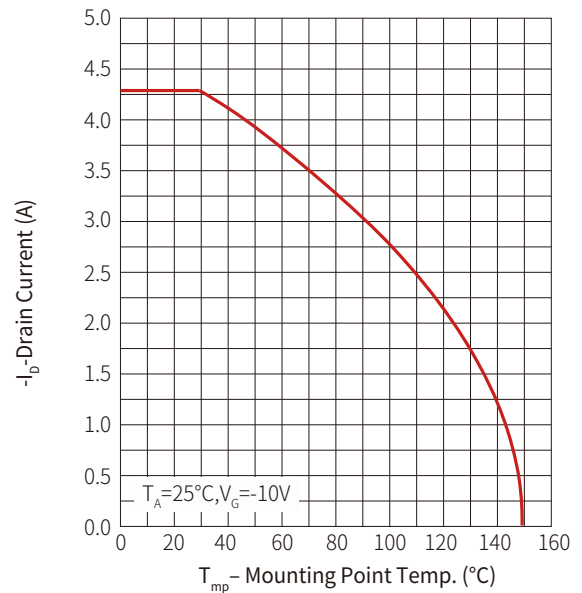


Figure3: Safe Operating Area

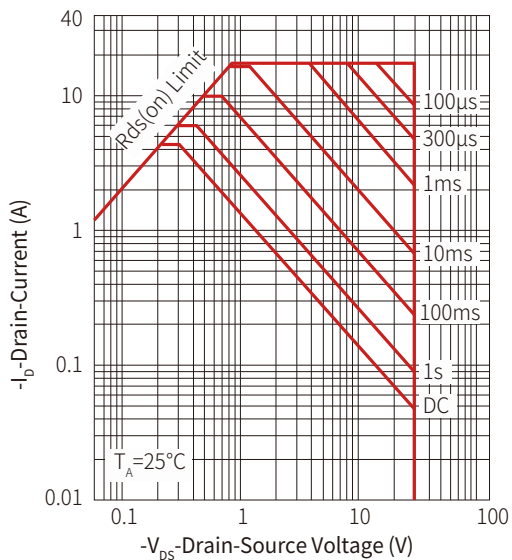


Figure 4: Transient Thermal Impedance

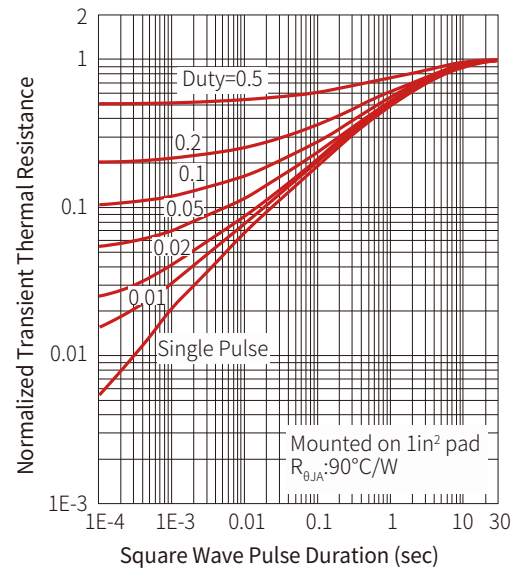
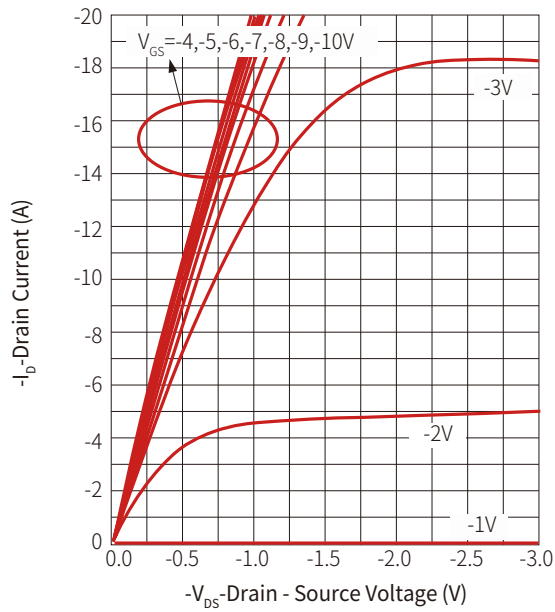
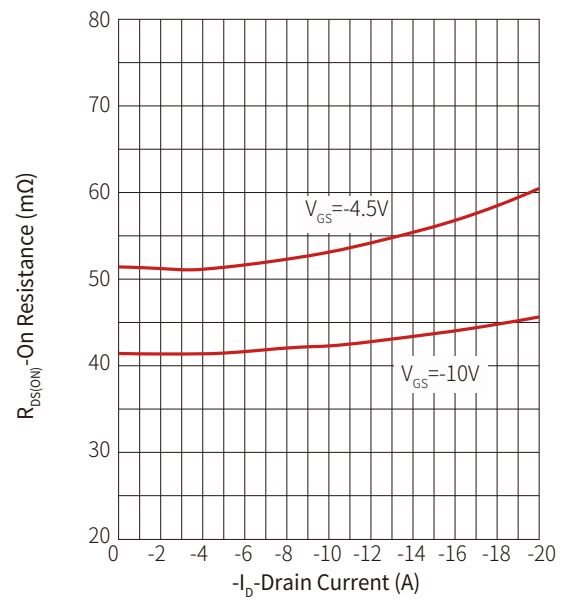
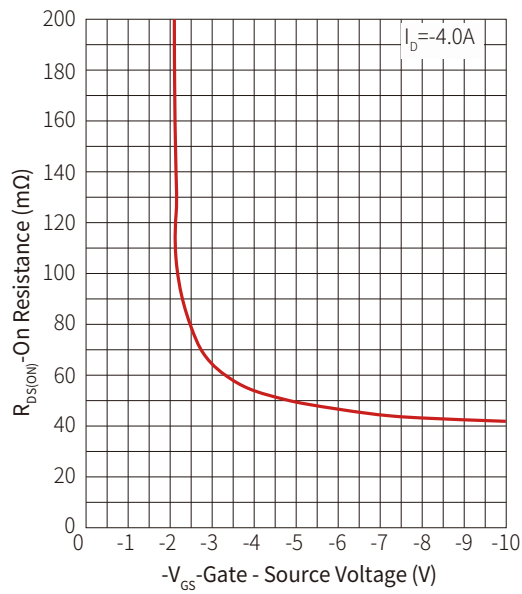
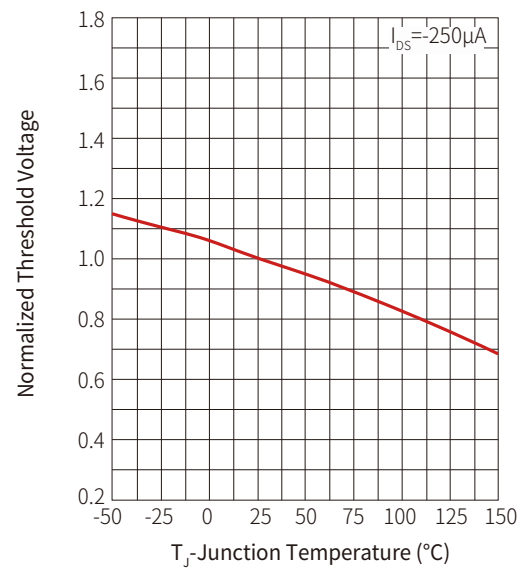
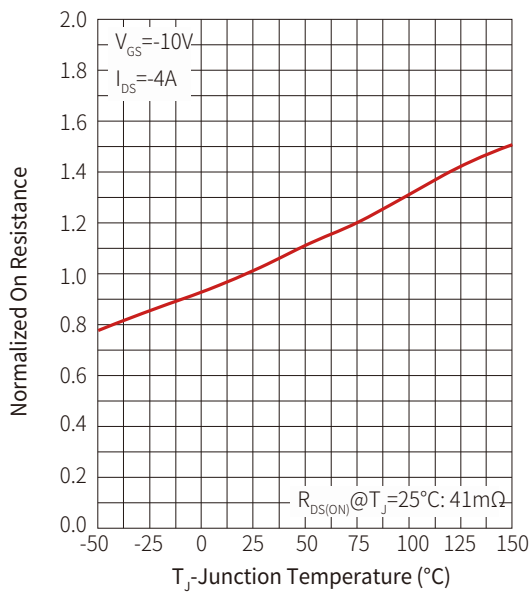
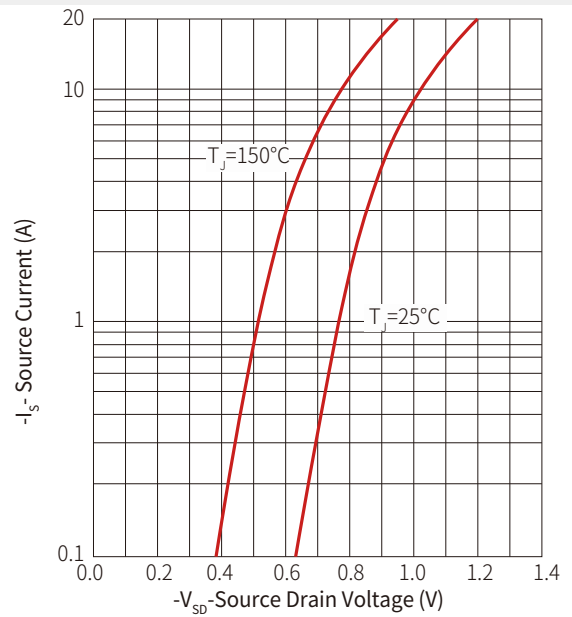
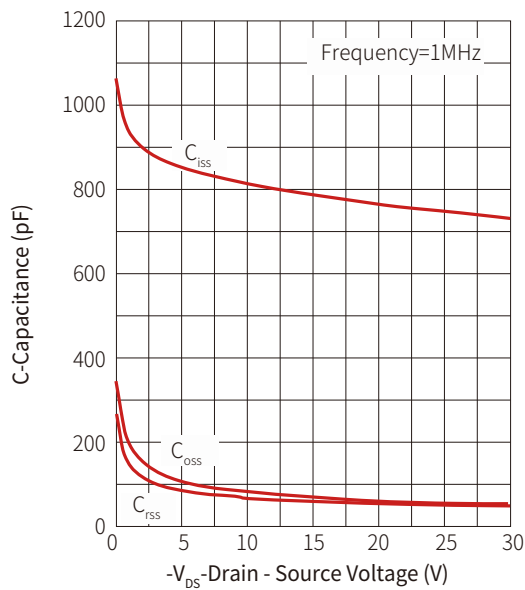
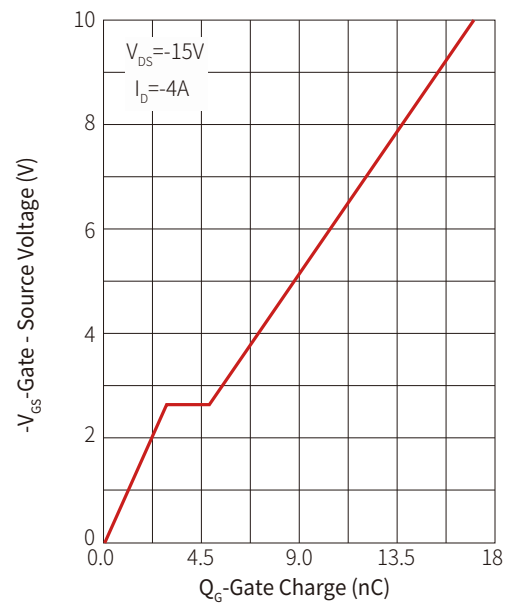
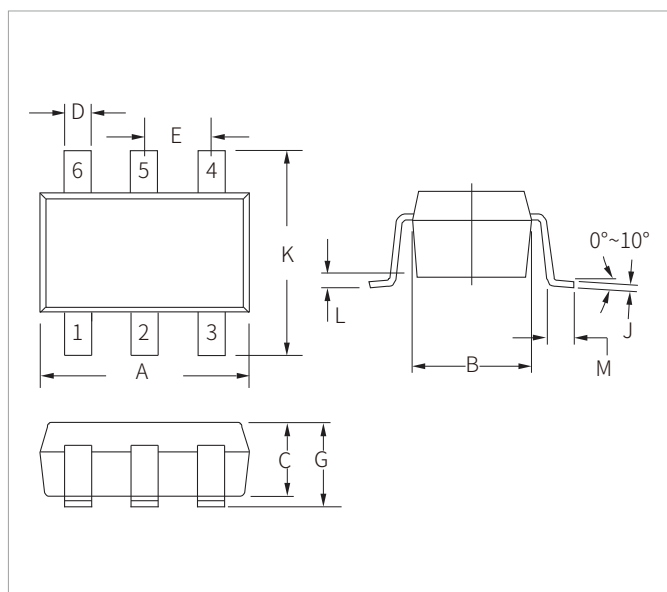


Figure 5: Output Characteristics

Figure 6: On Resistance

Figure 7: Transfer Characteristics

Figure 8: Normalized Threshold Voltage


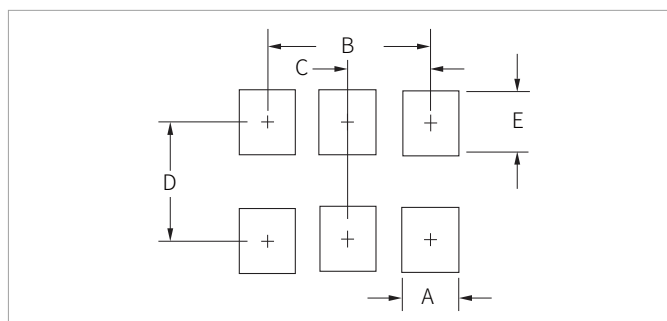
**Figure 9: Normalized On Resistance****Figure 10: Diode Forward Current****Figure 11: Capacitance****Figure 12: Gate Charge**

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
SPM4953CS	SOT-23-6L	3000PCS	7"

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By QR Code

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