

FEATURES

| Low RDS(ON) to minimize conductive loss

| High GOX reliability

| Low Thermal resistance



APPLICATION

| BLDC Motor driver

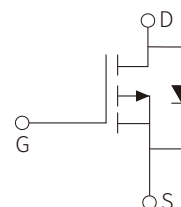
| DC-DC

| Load Switch



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 $25^{\circ}\text{C} \leq T_j \leq 150^{\circ}\text{C}$		V_{DS}	-60	V
Continuous Drain Current	$T_c=25^{\circ}\text{C}$	I_D	-2.0	A
	$T_c=75^{\circ}\text{C}$		-1.98	A
	$T_c=100^{\circ}\text{C}$		-1.59	A
Pulsed Drain Current Pulsed; $t_p \leq 10 \mu\text{s}$; $T_{mb} = 25^{\circ}\text{C}$		I_{DM}	-8	A
Gate Source Voltage		V_{GS}	± 20	V
Total Power Dissipation	$T_c=75^{\circ}\text{C}$	P_D	2	W
	$T_A=25^{\circ}\text{C}$		0.7	W
Junction-to-Ambient Thermal Resistance (Note 1)		$R_{\theta JA}$	180	$^{\circ}\text{C/W}$
Thermal Resistance, Junction-to-Lead		$R_{\theta JL}$	80	$^{\circ}\text{C/W}$
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
Off Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =-250μA	-60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.1	-1.6	-2.4	V
Drain Cut-Off Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain Source ON Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-3A		80	104	mΩ
		V _{GS} =-4.5V, I _D =-2A		104	135	mΩ
Diode Forward Voltage	V _{FSD}	V _{GS} =0V, I _{SD} =-1.5A			1.3	V
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =-25V, f=1.0MHz		680		pF
Output capacitance	C _{oss}			96		pF
Reverse transfer capacitance	C _{rss}			74		pF
Total Gate Charge	Q _g	V _{DD} =-15V, V _{GS} =-10V, I _D =-1A		16		nC
Total Gate Charge	Q _{g (-4.5V)}			21		nC
Gate-Source Charge	Q _{gs}			2		nC
Gate-Drain Charge	Q _{gd}			3		nC
Turn-on Delay Time	t _{d(on)}	V _{DS} =-15V, V _{GS} =-10V I _D =-1A, R _G =3.3Ω		8		ns
Turn-on Rise Time	t _r			9		ns
Turn-Off Delay Time	t _{d(off)}			15		ns
Turn-Off Fall Time	t _f			4		ns
Reverse Recovery Time	t _{rr}	V _{DD} =-20V, I _S =-2A dI _S /dt=100A/us		45		nS
Reverse Recovery Charge	Q _{rr}			115		nC

PARAMETER CHARACTERISTIC CURVE

Figure 1: Gate-Charge Characteristics

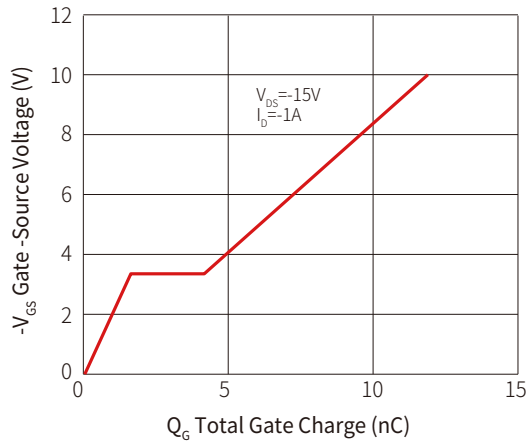


Figure 2: Capacitance Characteristics

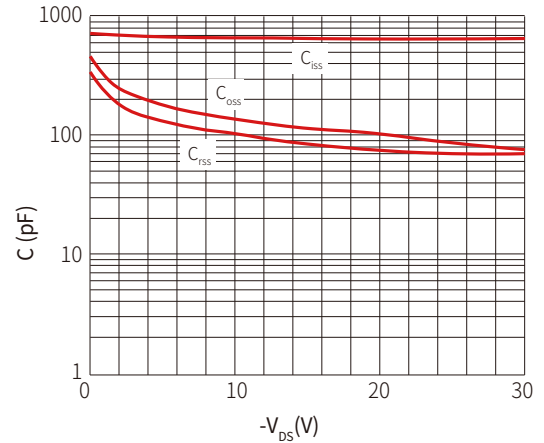


Figure 3: Power Dissipation

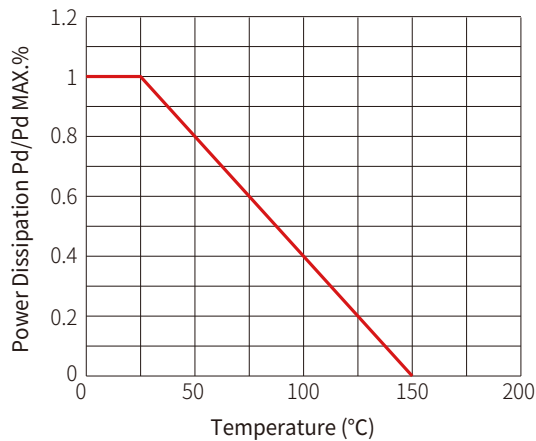


Figure 4: Typical output Characteristics

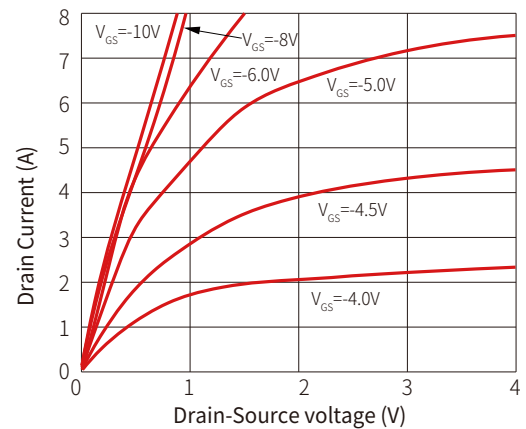


Figure 5: Threshold Voltage V.S Junction Temperature

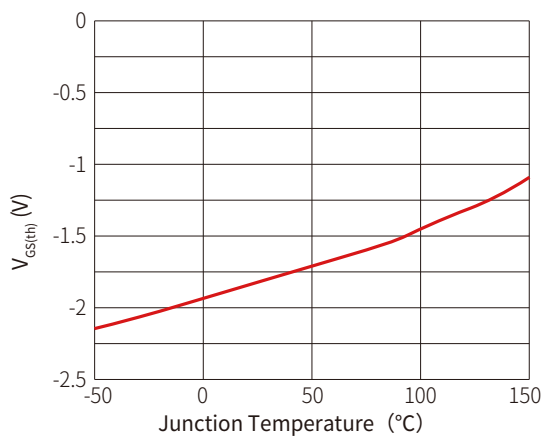


Figure 6: Resistance V.S Drain Current

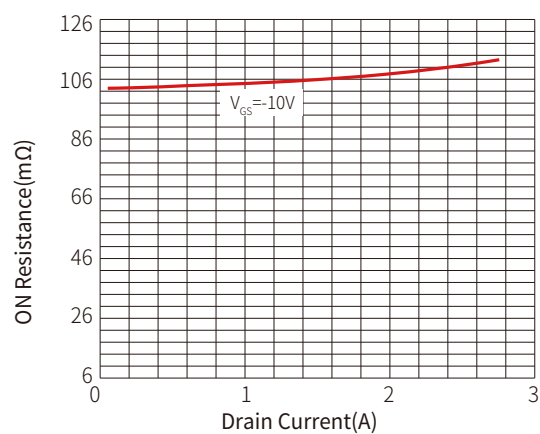
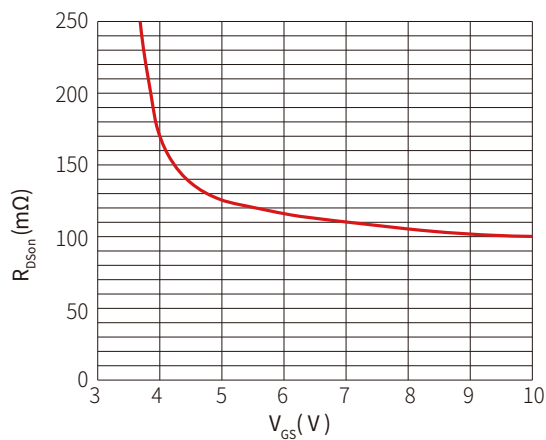
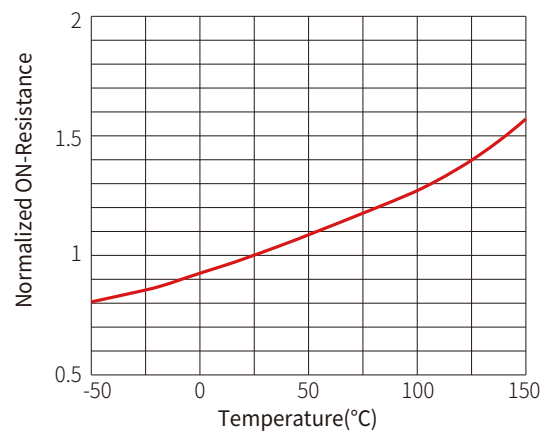
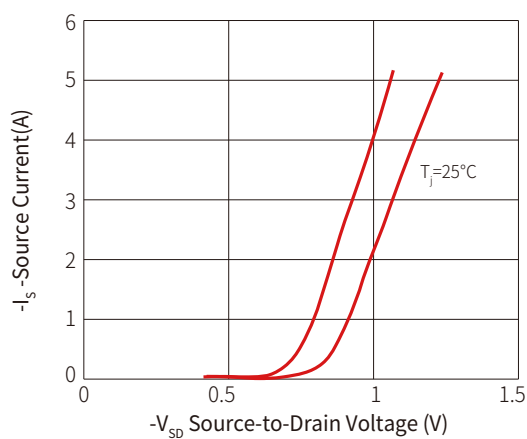
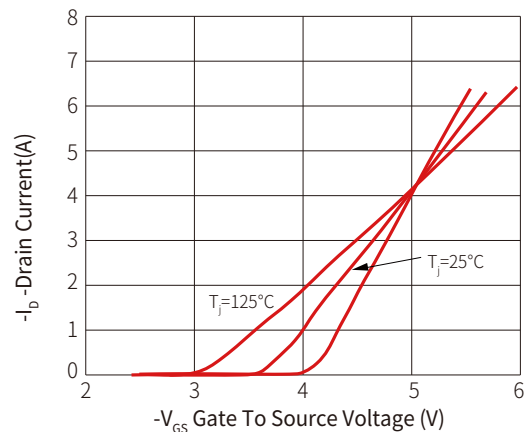
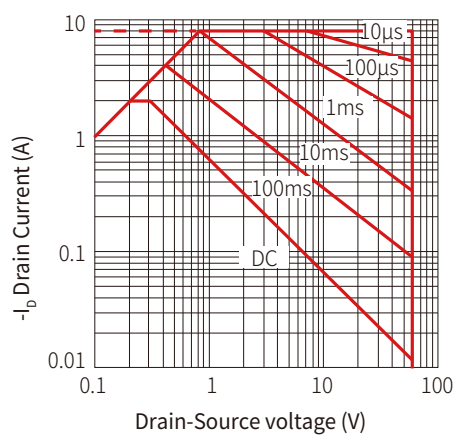
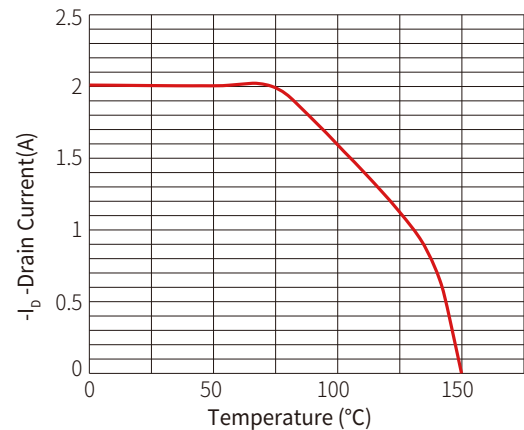
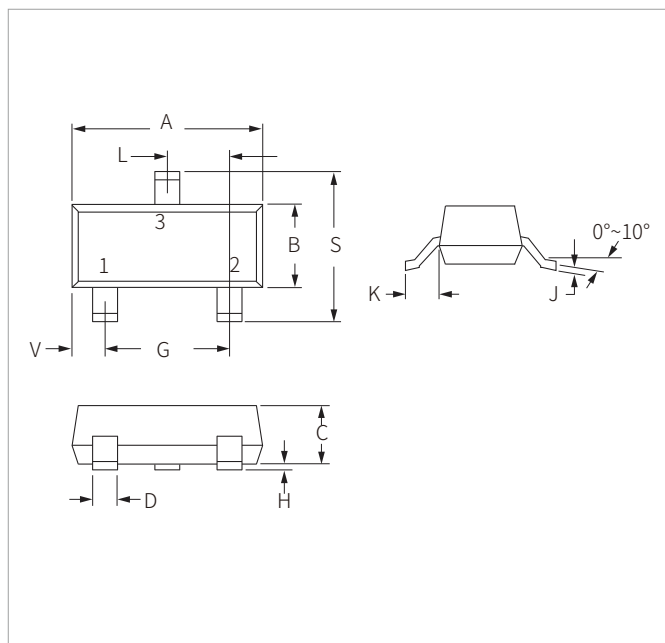


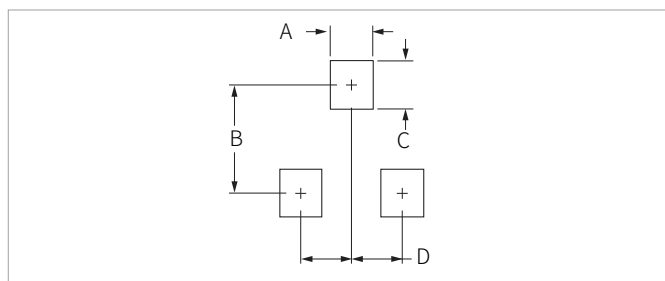
Figure 7: On-Resistance VS Gate Source Voltage

Figure 8: On-Resistance V.S Junction Temperature

Figure 9: Diode Forward Voltage vs. Current

Figure 10: Transfer Characteristics

Figure 11: SOA Maximum Safe Operating Area

Figure 12: I_D vs. Case Temperature


SOT-23-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.15	0.110	0.124
B	1.50	1.70	0.060	0.070
C	1.00	1.30	0.039	0.051
D	0.37	0.50	0.015	0.020
G	1.78	2.10	0.070	0.083
H	0.01	0.15	0.001	0.006
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.60	3.00	0.102	0.118
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.70	1.00	0.028	0.039
B	2.30	2.50	0.090	0.098
C	0.70	1.00	0.028	0.039
D	0.80	1.10	0.032	0.043

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPM06120AS	SOT-23-3L	3000PCS	7"

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