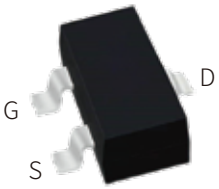
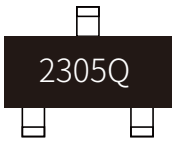
FEATURES

- Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Excellent ON resistance for higher DC current :
  $R_{DS(ON)}$ < 42m Ω @ V_{GS} =-4.5V (Type:32mΩ)
- V_{DS} =-20V,I_D =-4.1A
- Supper high density cell design
- High performance trench technology
- High Power and current handing capability
- Surface Mount Package
- Meet AEC-Q101 Requirements



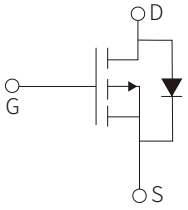
SOT-23



Marking

APPLICATION

- Load/Power Switching for portable device
- Charging device
- Power supply converters circuit



Schematic Symbol

APPROVALS

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

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain Source Voltage	V_{DSS}	-20	V
Gate Source Voltage	V_{GSS}	±12	V
Continuous Drain Current V_{GS}=4.5V (T_A=25°C)	I_D	-4.1	A
ID-Pulsed	I_{DM}	-24	A
Power Dissipation (Tc=25°C)	P_D	1.7	W
Junction-to-Ambient Thermal Resistance[a]	$R_{\theta JA}$	75	°C/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to 150	°C

a Surface mounted on FR-5 Board using 1 square inch pad size, 1oz copper

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250μA	-20			V
Gate Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V			±0.1	uA
Drain Cut-Off Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-0.45	-0.70	-1.0	V
Drain-Source On–State Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-4.1A		32	42	mΩ
		V_{GS}=-2.5V,I_D=-3A		50	75	mΩ
Forward Trans conductance	g_{FS}	V_{DS}=-5V,I_D=-2A	6			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-4V,V_{GS}=0V,f=1.0MHz		740		pF
Output Capacitance	C_{oss}			290		pF
Reverse Transfer Capacitance	C_{rss}			190		pF
Turn–on Delay Time	$t_{d(on)}$	V_{DD}=-4V,I_D=-3.3A V_{GEN}=-4.5V,R_G=1Ω R_L=1.2Ω			15	ns
Turn–on Rise Time	t_r				80	ns
Turn–Off Delay Time	$t_{d(off)}$				60	ns
Turn–off Fall Time	t_f				25	ns
Total Gate Charge	Q_g	V_{DS}=-10V,I_D=-4.1A V_{GS}=-4.5V		7.8		nC
Gate-Source Charge	Q_{gs}			1.2		nC
Gate-Drain Charge	Q_{gd}			1.6		nC
Drain Source Body Diode Characteristics						
Source Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-1.6A			-1.2	V

PARAMETER CHARACTERISTIC CURVE

Figure1: Output Characteristics

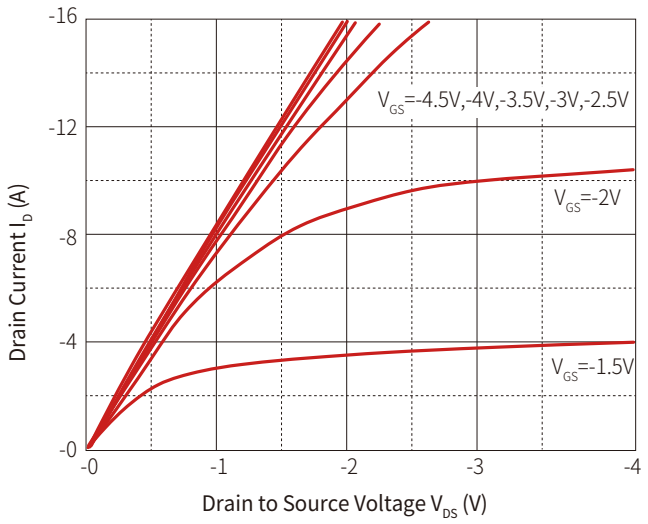


Figure2: Transfer Characteristics

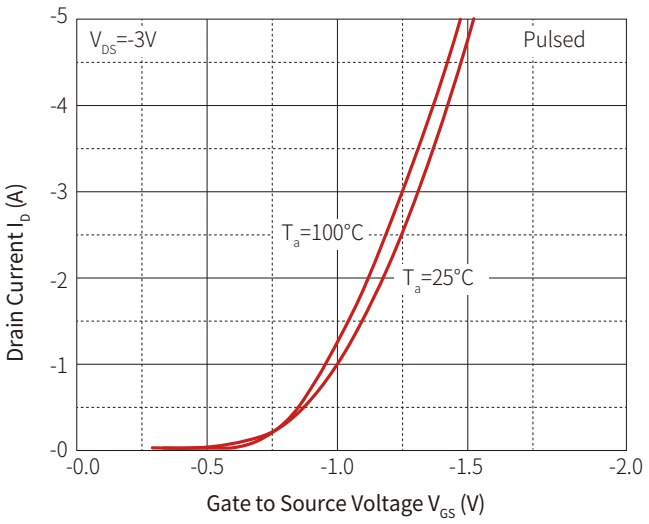


Figure3: $R_{DS(ON)}$ ——— I_D

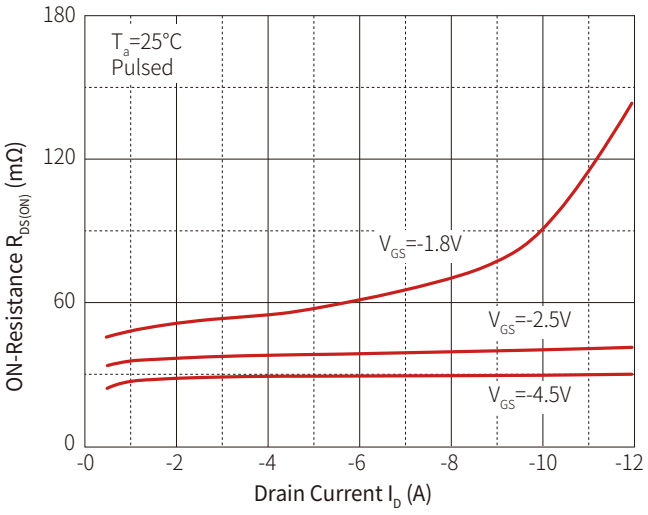


Figure4: $R_{DS(ON)}$ ——— V_{GS}

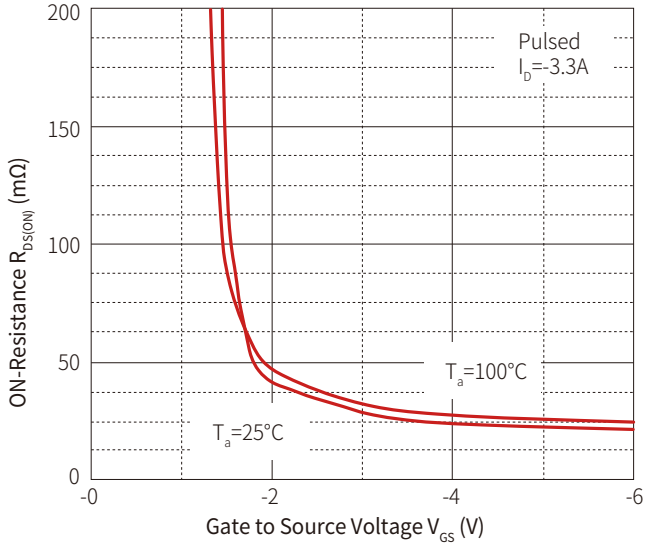


Figure5: I_S——— V_{SD}

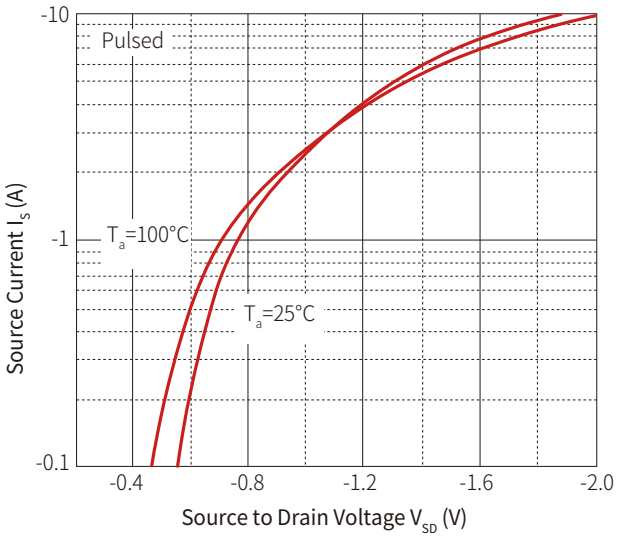
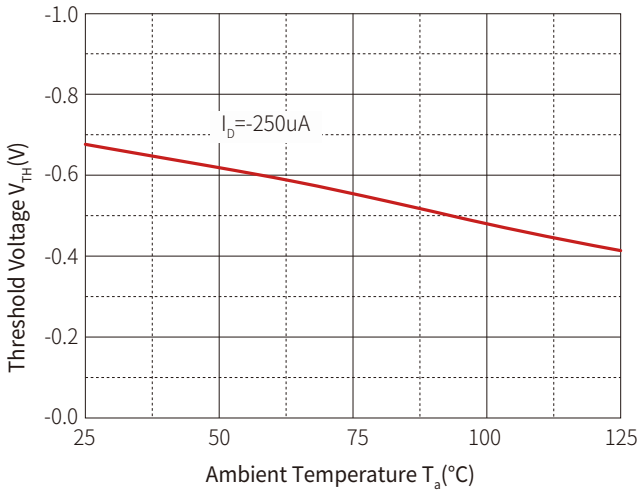
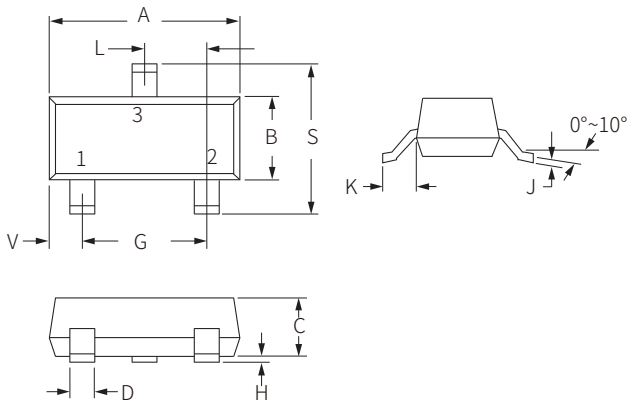


Figure 6: Threshold Voltage

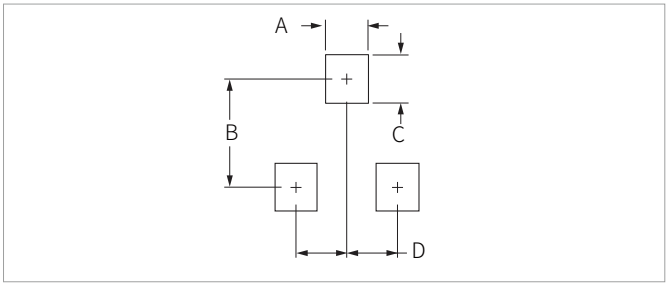


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
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
SPM2305SQ	SOT-23	3000PCS	7”

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