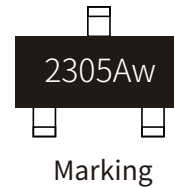


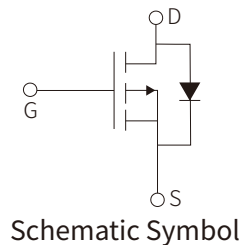
## FEATURES

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



## APPLICATION

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



## APPROVALS

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

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain Source Voltage	$V_{DSS}$	-20	V
Gate Source Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current ( $T_c=25^\circ C$ )	$I_D$	-4.1	A
Power Dissipation ( $T_c=25^\circ C$ )	$P_D$	1.7	W
Junction-to-Ambient Thermal Resistance <sup>a</sup>	$R_{\theta JA}$	75	$^\circ C/W$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

<sup>a</sup> 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
<b>Static Characteristics</b>						
Drain Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate Leakage Current	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$			$\pm 0.1$	$\mu A$
Drain Cut-Off Current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V$			-1	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-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	$m\Omega$
		$V_{GS}=-2.5V, I_D=-3A$		50	75	$m\Omega$
Forward Trans conductance	$g_{FS}$	$V_{DS}=-5V, I_D=-2A$	6			S
<b>Dynamic Characteristics</b>						
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	$t_{d(on)}$	$V_{DD}=-4V, I_D=-3.3A$ $V_{GEN}=-4.5V, R_G=1\Omega$ $R_L=1.2\Omega$			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
<b>Drain Source Body Diode Characteristics</b>						
Source Drain Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-1.6A$			-1.2	V

# PARAMETER CHARACTERISTIC CURVE

Figure1: Output Characteristics

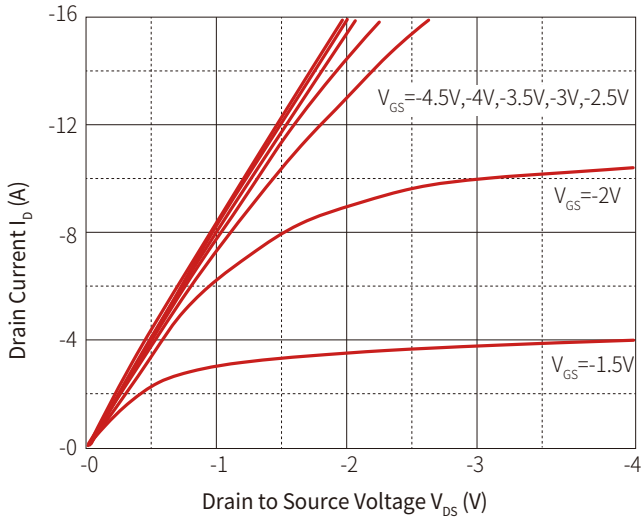


Figure2: Transfer Characteristics

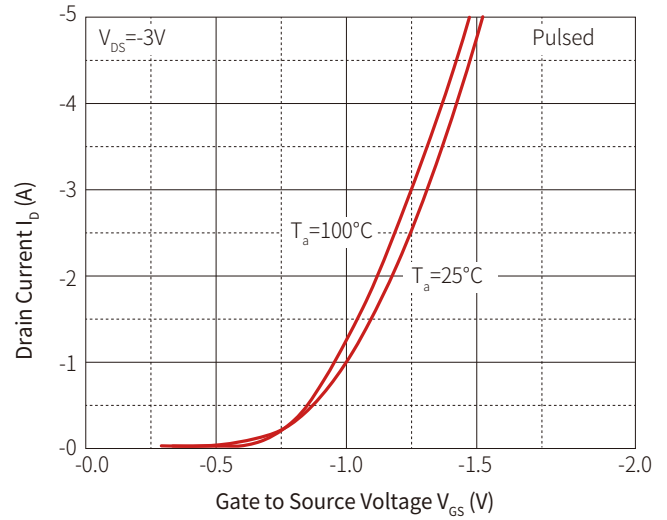


Figure3:  $R_{DS(ON)}$  vs  $I_D$

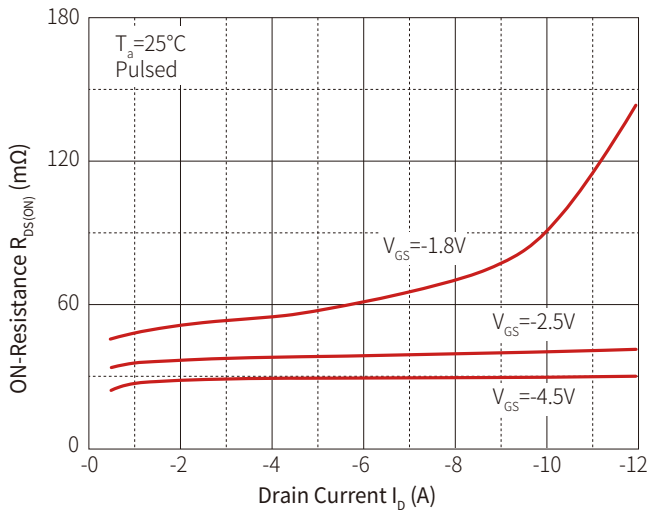
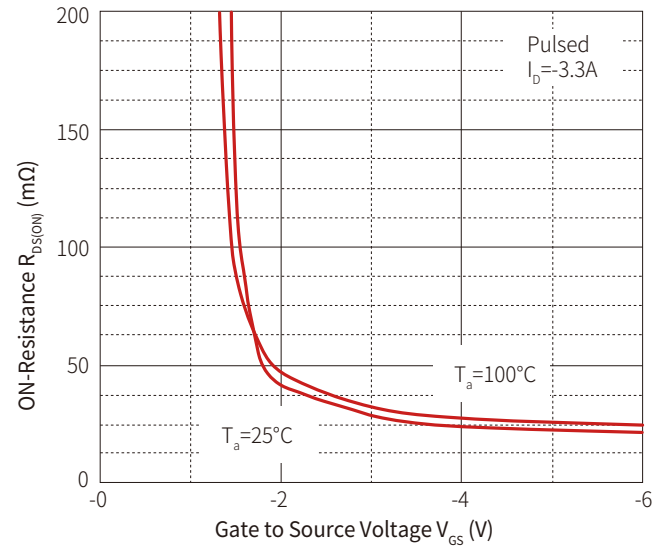
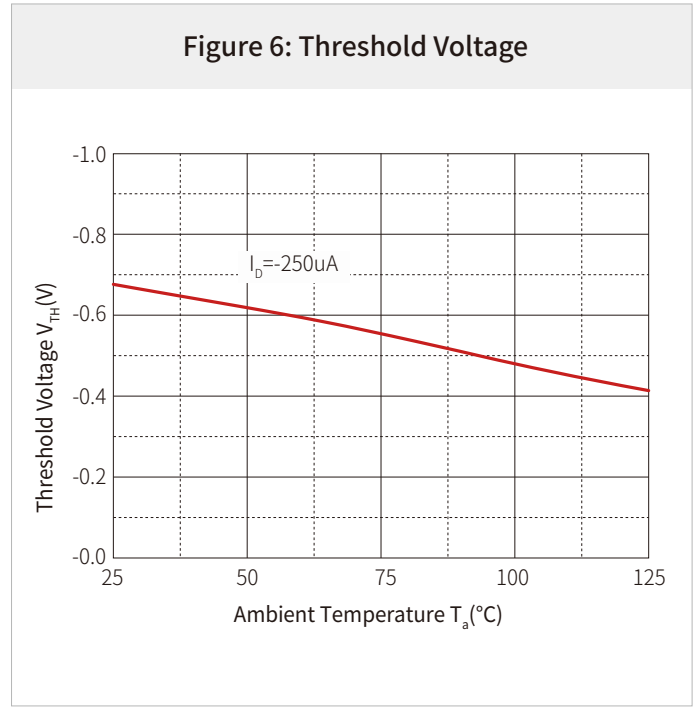
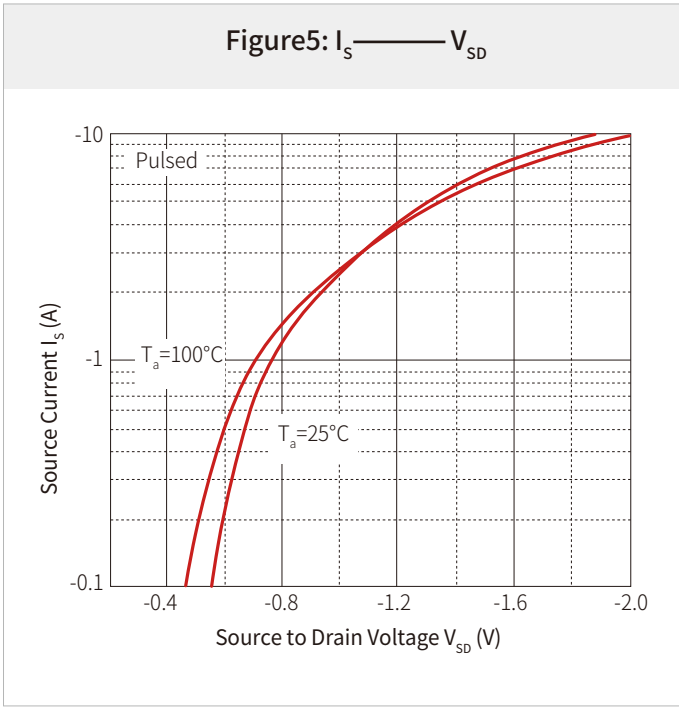
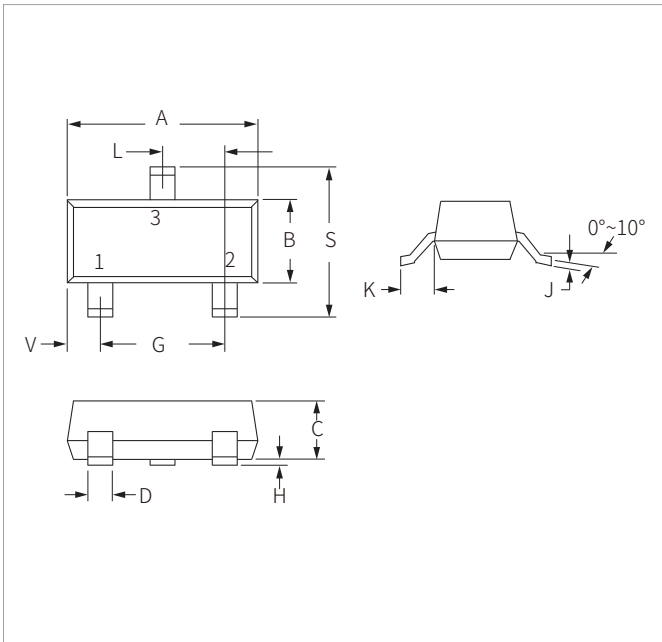


Figure4:  $R_{DS(ON)}$  vs  $V_{GS}$



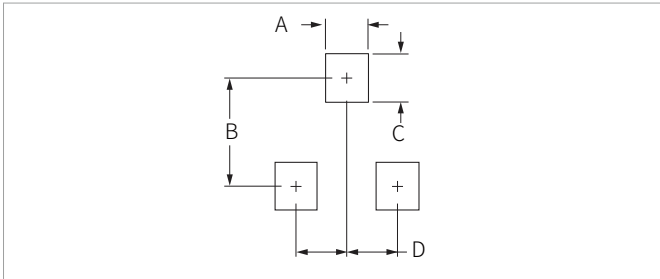


## SOT-23 PACKAGE INFORMATION



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
SPM2305S	SOT-23	3000PCS	7"

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