

# KY2302S

20V N-Channel Mosfet

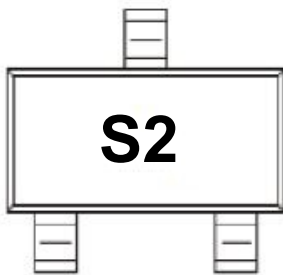
## FEATURES

- $R_{DS(ON)} \leq 80m\Omega$  ( 53m $\Omega$  Typ.)  
@ $V_{GS}=4.5V$
- $R_{DS(ON)} \leq 115m\Omega$  ( 72m $\Omega$  Typ.)  
@ $V_{GS}=2.5V$

## APPLICATIONS

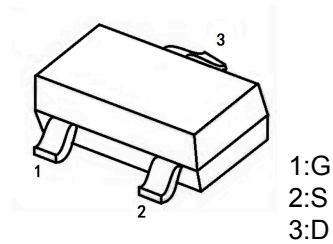
- Load Switch for Portable Devices
- DC/DC Converter

## MARKING

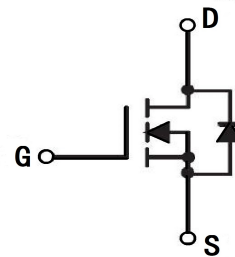


Other Marking: "A2SHB"

## SOT-23



## N-CHANNEL MOSFET



## Maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	
Continuous Drain Current	$I_D$	2	A
Pulsed Drain Current	$I_{DM}$	8	
Maximum Power Dissipation	$P_D$	0.4	W
Thermal Resistance from Junction to Ambient( $t \leq 5s$ )	$R_{\theta JA}$	312	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55 ~ +150	

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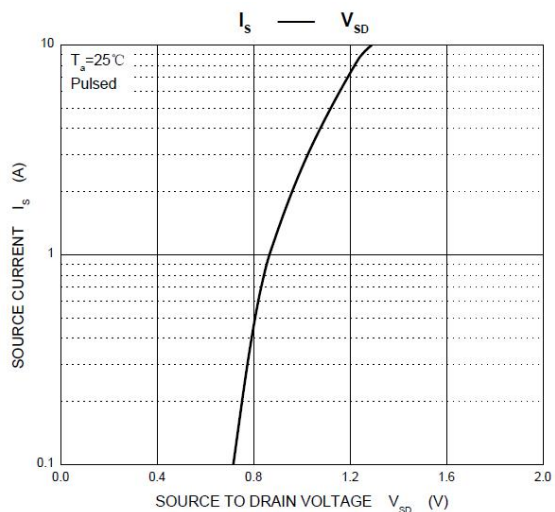
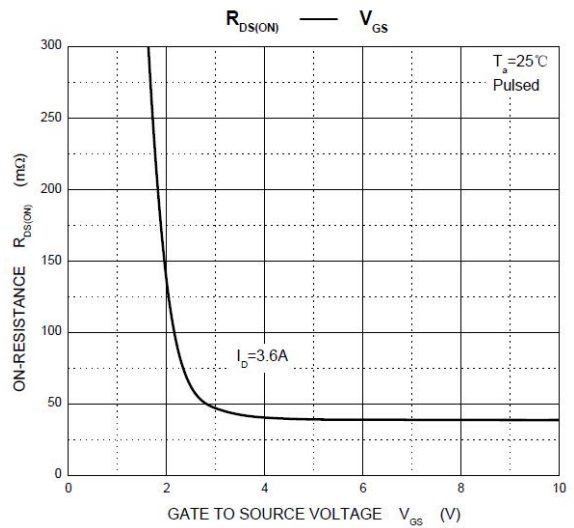
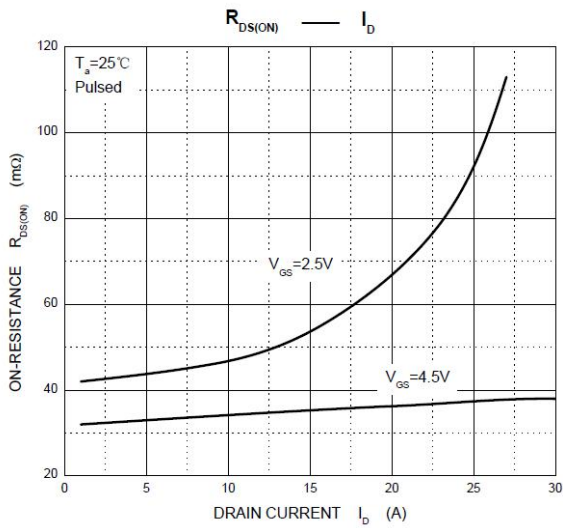
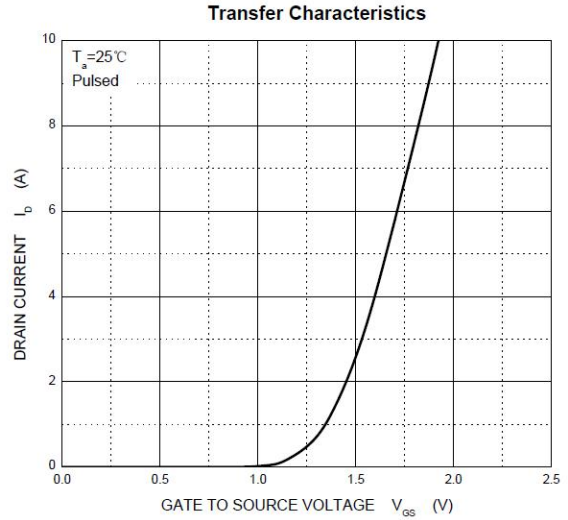
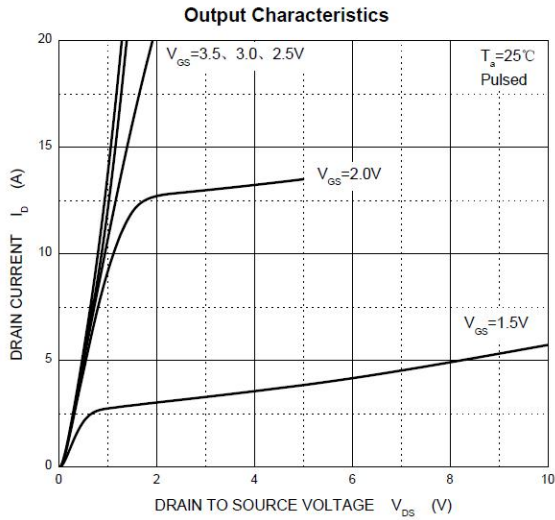
## MOSFET ELECTRICAL CHARACTERISTICS $T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
$I_{DSS}$	Zero gate voltage drain current	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	$\mu A$
$I_{GSS}$	Gate-body leakage current	$V_{GS} = \pm 10V, V_{DS} = 0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.2	V
$R_{DS(on)}$	Drain-source on-resistance <sup>note1</sup>	$V_{GS} = 4.5V, I_D = 2A$	-	53	80	m $\Omega$
		$V_{GS} = 2.5V, I_D = 2A$	-	72	115	
<b>Dynamic characteristics</b> <sup>note2</sup>						
$C_{iss}$	Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	-	300	-	pF
$C_{oss}$	Output Capacitance					
$C_{rss}$	Reverse Transfer Capacitance					
$Q_g$	Total gate charge	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 3.6A$	-	4	10	nC
$Q_{gs}$	Gate-source charge					
$Q_{gd}$	Gate-drain charge					
<b>Switching Characteristics</b> <sup>note2</sup>						
$t_{d(on)}$	Turn-on delay time	$V_{DD} = 10V,$ $R_L = 5.5\Omega, I_D = 3.6A,$ $V_{GEN} = 4.5V, R_g = 6\Omega$	-	7	15	nS
$t_r$	Rise time					
$t_{d(off)}$	Turn-off delay time					
$t_f$	Fall time					
<b>Source-Drain Diode characteristics</b>						
$V_{SD}$	Diode Forward voltage	$V_{GS} = 0V, I_S = 1A$	-	0.7	1.2	V

**Notes :**

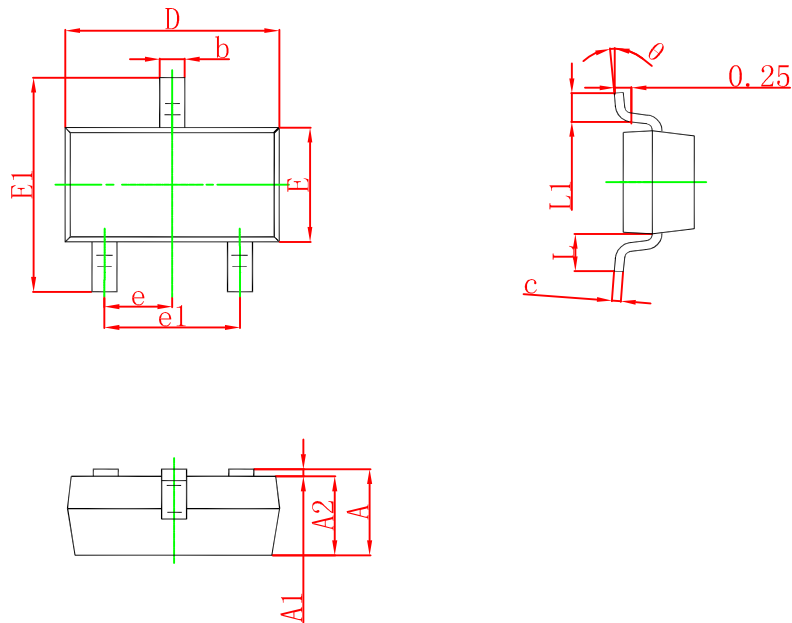
1. Pulse Test : Pulse Width < 300 $\mu s$ , Duty Cycle  $\leq 2\%$ .
2. Guaranteed by design, not subject to production testing.

## TYPICAL PERFORMANCE CHARACTERISTICS



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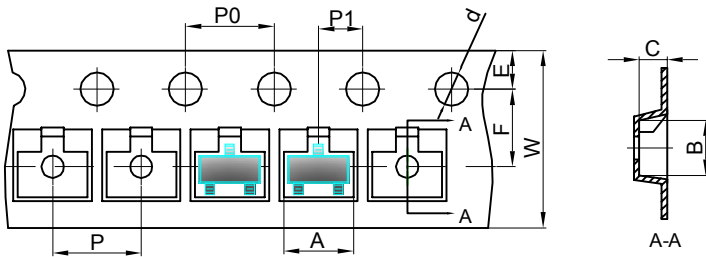
## SOT-23 PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

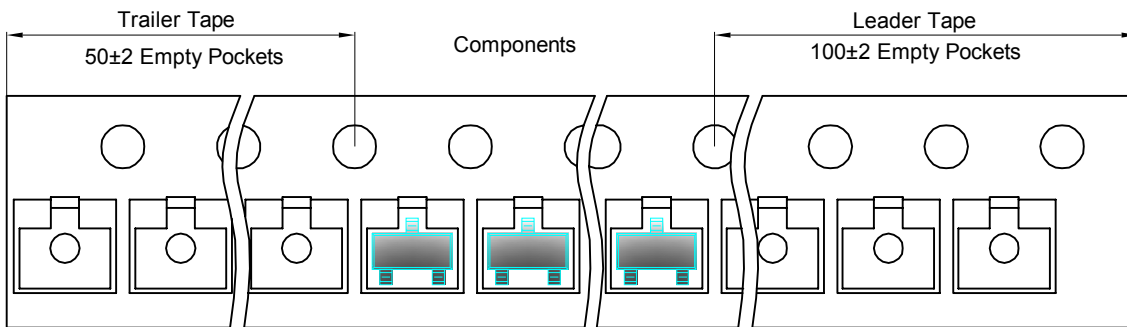
## SOT-23 Tape and reel

SOT-23 Embossed Carrier Tape

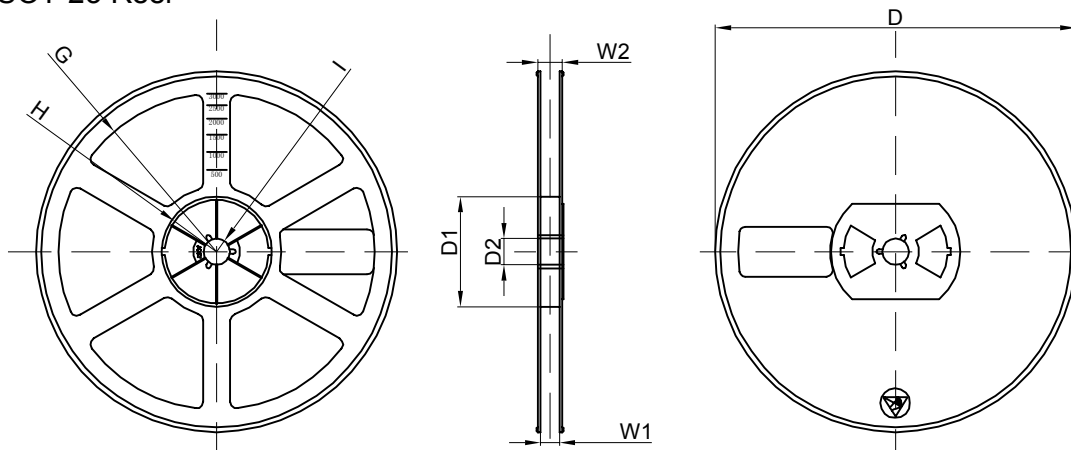


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

## SOT-23 Tape Leader and Trailer



## SOT-23 Reel



Dimensions are in millimeter									
Reel Option	D	D1	D2	G	H	I	W1	W2	
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	