

# KY2300

## 20V N-Channel Mosfet

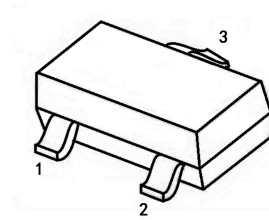
### FEATURES

- $R_{DS(ON)} \leq 24m\Omega$  ( 21.6m $\Omega$  Typ.)  
@ $V_{GS}=4.5V$
- $R_{DS(ON)} \leq 37m\Omega$  ( 27m $\Omega$  Typ.)  
@ $V_{GS}=2.5V$

### APPLICATIONS

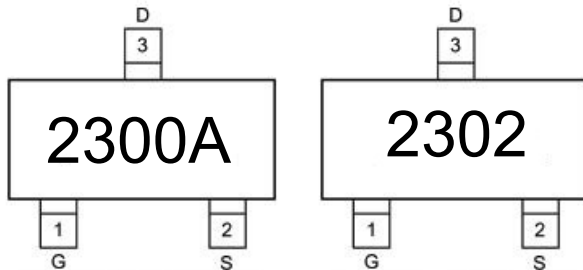
- PWM Applications
- Load Switch
- Power Management

### SOT-23



1. GATE
2. SOURCE
3. DRAIN

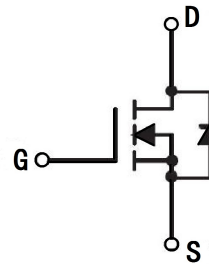
### MARKING



2300A: Device code

2302: Device code

### N-CHANNEL MOSFET



### MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

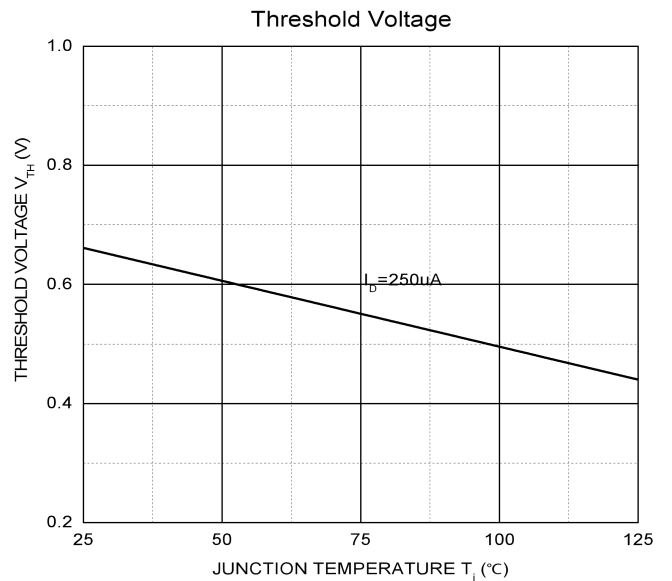
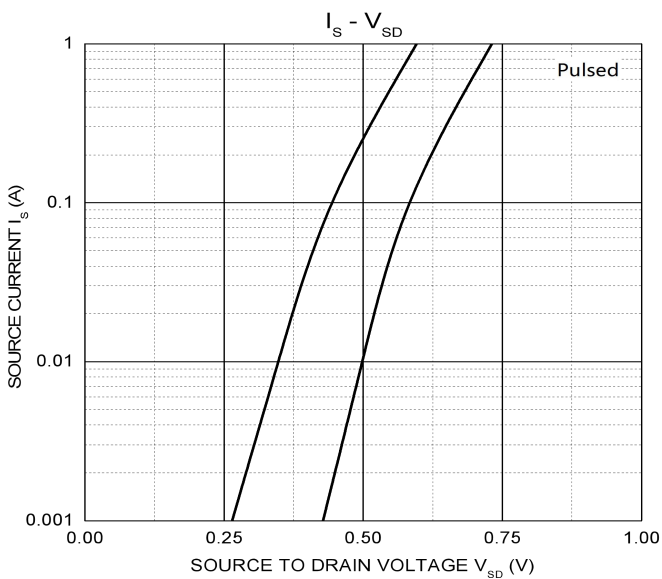
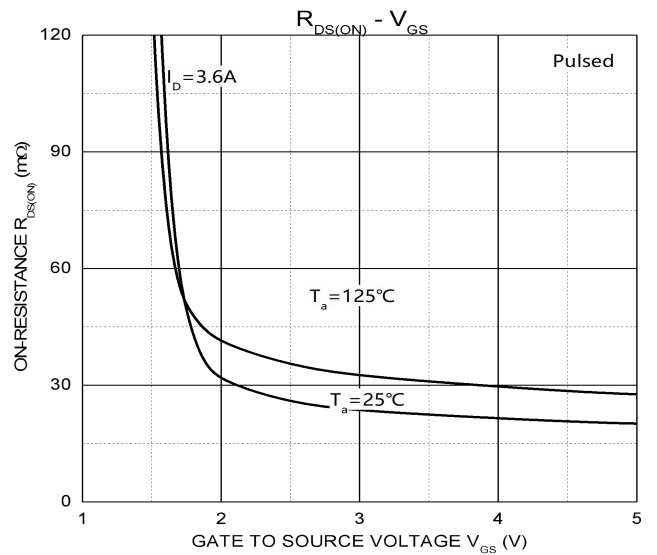
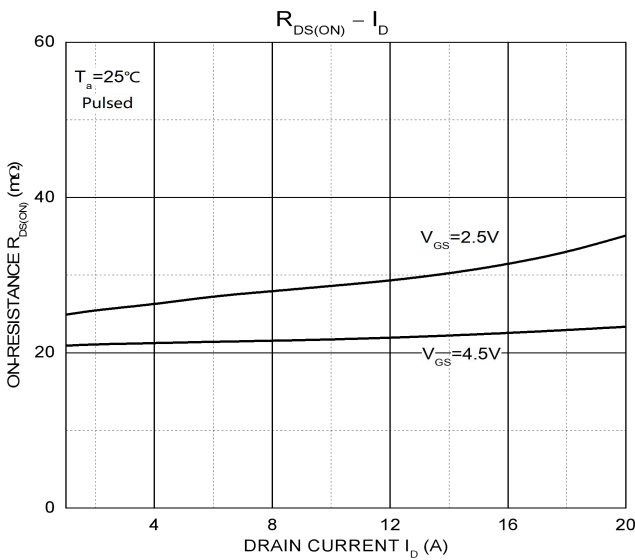
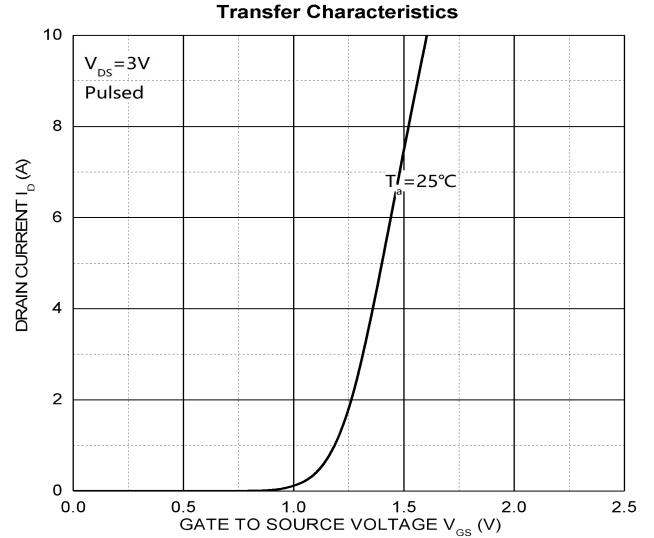
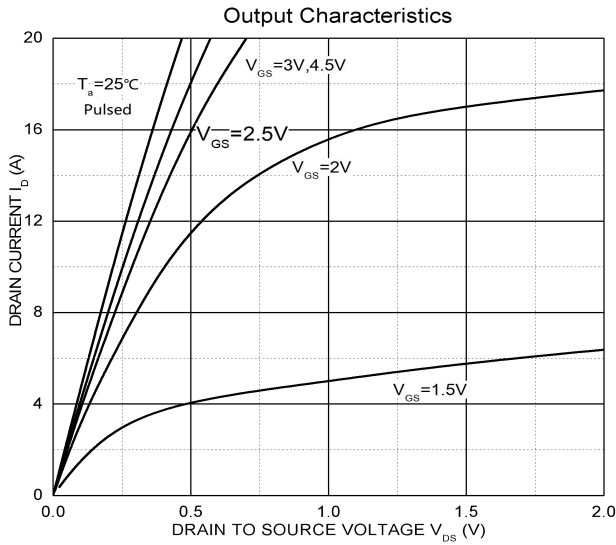
Symbol	Parameter	Value	Unit
$V_{DS}$	Drain-Source Voltage	20	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current	5	A
$I_{DM}$	Plused Drain Current	25	A
$P_D$	Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357	$^{\circ}C/W$
$T_J$	Junction Temperature	150	$^{\circ}C$
$T_{STG}$	Storage Temperature	-55~ +150	$^{\circ}C$

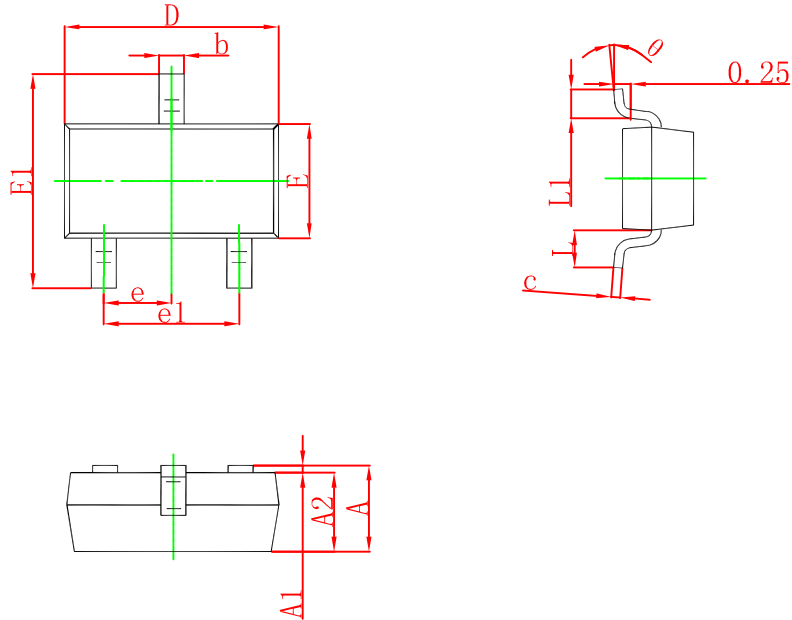
# KY2300

## MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</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	$V_{DS} = 20V,$ $V_{GS} = 0V, T_J = 25^\circ C$	-	-	1	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.66	1.2	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = 4.5V, I_D = 4A$	-	21.6	24	m $\Omega$
		$V_{GS} = 2.5V, I_D = 3A$	-	27	37	
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1.0MHz$	-	800	-	pF
$C_{oss}$	Output Capacitance		-	155	-	pF
$C_{riss}$	Reverse Transfer Capacitance		-	125	-	pF
$Q_g$	Total Gate Charge	$V_{DS} = 10V, I_D = 4A,$ $V_{GS} = 4.5V,$	-	11	-	nC
$Q_{gs}$	Gate-Source Charge		-	2.3	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	2.5	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-On Delay Time	$V_{GS} = 4V, V_{DS} = 10V,$ $R_G = 10\Omega, I_D = 1A$	-	18	-	ns
$t_r$	Turn-On Rise Time		-	5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	43	-	ns
$t_f$	Turn-Off Fall Time		-	20	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_{SD} = 1.7A$	-	-	1.2	V

## TYPICAL PERFORMANCE CHARACTERISTICS



**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°

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