

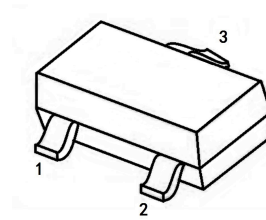
# KY2302H

20V N-Channel Mosfet

## FEATURES

- $R_{DS(ON)} \leq 35m\Omega$  (24m $\Omega$  Typ.)  
@ $V_{GS}=4.5V$
- $R_{DS(ON)} \leq 50m\Omega$  (29m $\Omega$  Typ.)  
@ $V_{GS}=2.5V$

## SOT-23

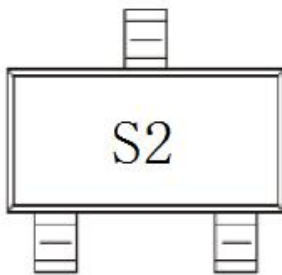


1. GATE
2. SOURCE
3. DRAIN

## APPLICATIONS

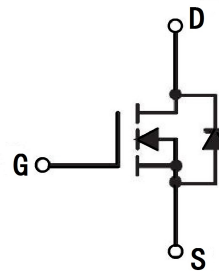
- Load Switch for Portable Devices
- DC/DC Converter

## MARKING



S2 : 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	$\pm 12$	
$I_D$	Continuous Drain Current	4	A
$I_{DM}$	Pulsed Drain Current note1	16	
$P_D$	Maximum Power Dissipation	0.84	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient(t $\leq$ 5s)	150	$^{\circ}C/W$
$T_J$	Junction Temperature	150	$^{\circ}C$
$T_{stg}$	Storage Temperature	-55 ~+150	

# KY2302H

## 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	$V_{DS} = 16V,$ $V_{GS} = 0V, T_J = 25^\circ C$	-	-	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	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4	0.7	1.1	V
$R_{DS(on)}$	Static Drain-Source On-Resistance <sup>note2</sup>	$V_{GS} = 4.5V, I_D = 4A$	-	24	35	m $\Omega$
		$V_{GS} = 2.5V, I_D = 3.1A$	-	29	50	
$g_{fs}$	Forward transconductance	$V_{DS} = 5V, I_D = 3.6A$	-	9	-	S
<b>Dynamic Characteristics <sup>note3</sup></b>						
$C_{iss}$	Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1.0MHz$	-	310	-	pF
$C_{oss}$	Output Capacitance		-	125	-	pF
$C_{rss}$	Reverse Transfer Capacitance		-	86	-	pF
$Q_g$	Total Gate Charge	$V_{DS} = 10V, I_D = 3.6A,$ $V_{GS} = 4.5V,$	-	4	10	nC
$Q_{gs}$	Gate-Source Charge		-	0.65	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	1.5	-	nC
<b>Switching Characteristics <sup>note3</sup></b>						
$t_{d(on)}$	Turn-On Delay Time	$V_{GS} = 4.5V, V_{DS} = 10V,$ $R_G = 6\Omega, I_D = 3.6A$	-	8	-	ns
$t_r$	Turn-On Rise Time		-	57	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	17	-	ns
$t_f$	Turn-Off Fall Time		-	12	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_{SD} = 3A,$ $T_J = 25^\circ C$	-	0.8	1.3	V

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature

2. Pulse Test: Pulse width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$

3. Guaranteed by design, not subject to production testing

# KY2302H

## TYPICAL PERFORMANCE CHARACTERISTICS

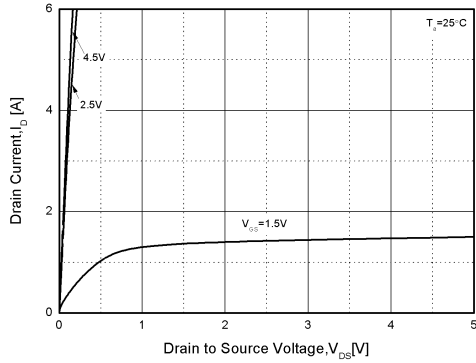


Figure1. Output Characteristics

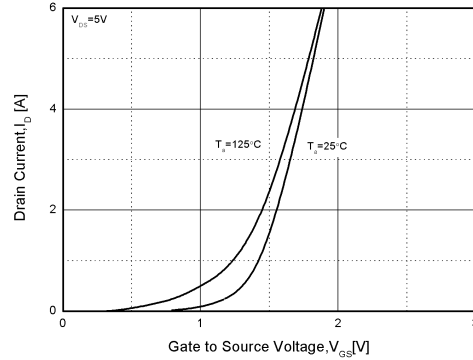


Figure2. Transfer Characteristics

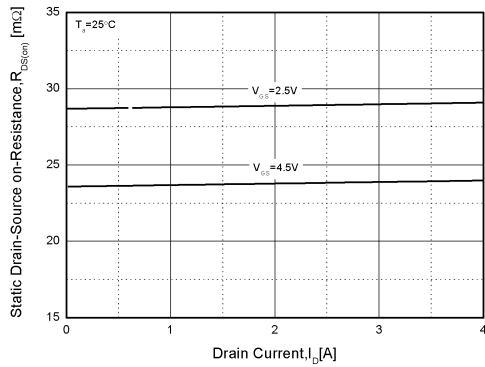


Figure3. Rdson-Drain Current

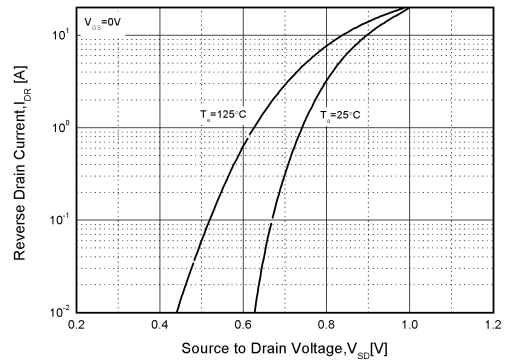


Figure4. Typical Source-Drain Diode Forward Voltage

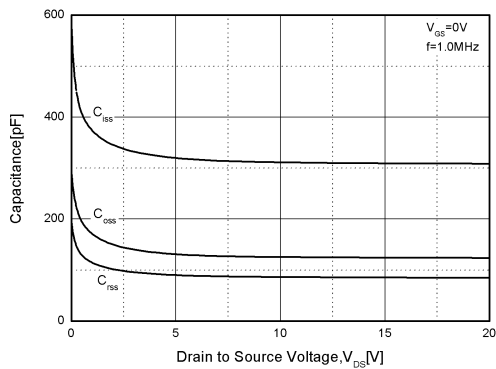


Figure5. Capacitance Characteristics

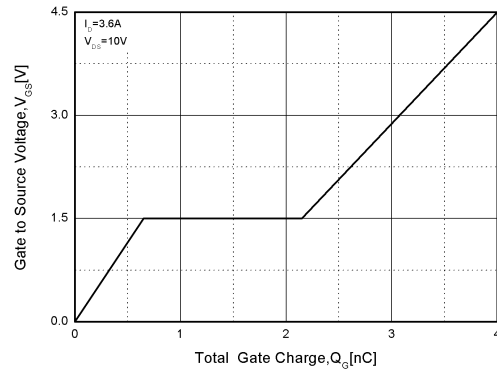


Figure6. Gate Charge

# KY2302H

## TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

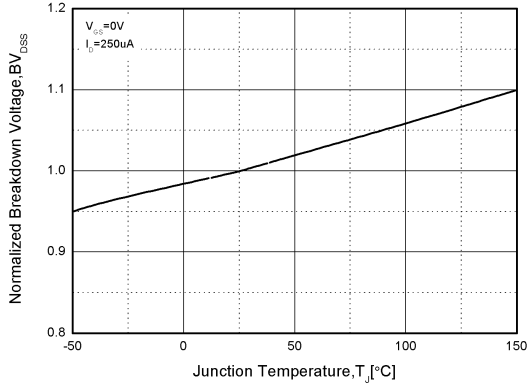


Figure7. Normalized Breakdown Voltage vs. Temperature

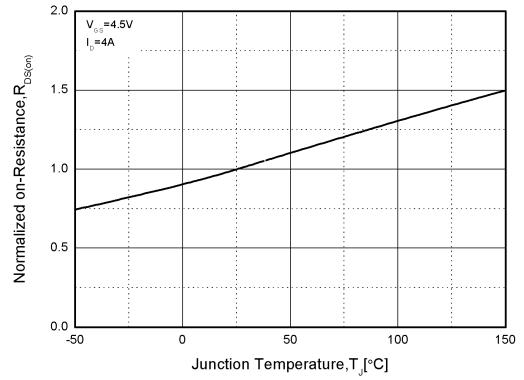


Figure8. Normalized on Resistance vs. Temperature

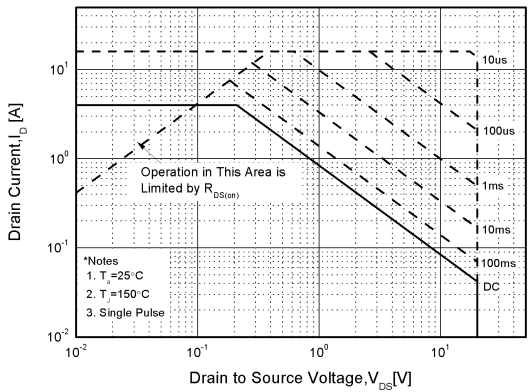


Figure9. Safe Operation Area

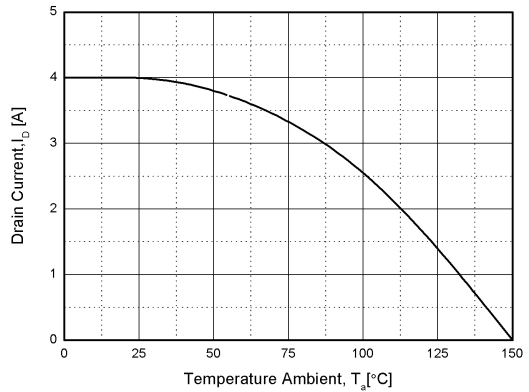


Figure10. Drain Current vs. Ambient Temperature

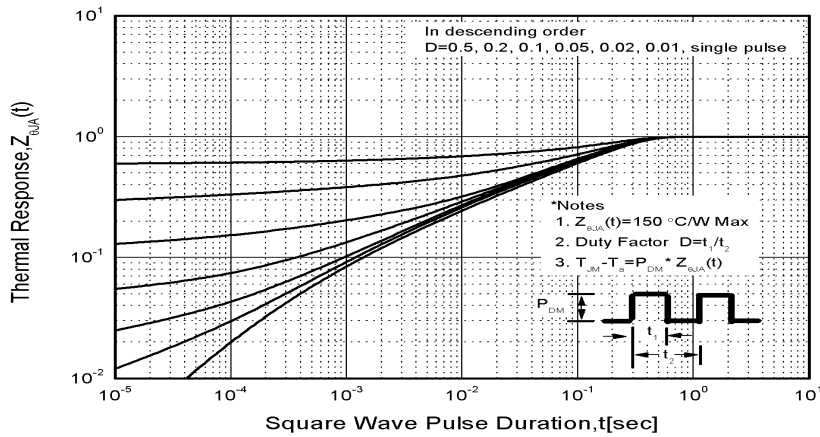
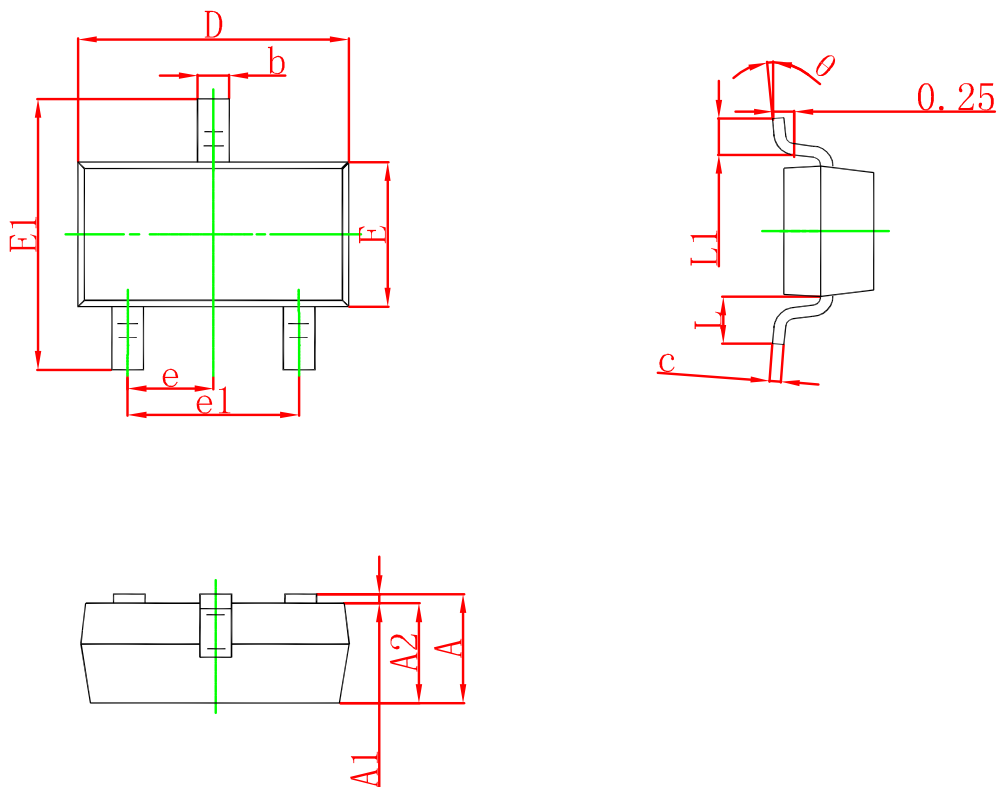


Figure11. Transient Thermal Response Curve

# KY2302H

## 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
$\theta$	0°	8°	0°	8°

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [Kang Yang](#) manufacturer:*

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [TK100A10N1,S4X\(S](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)  
[IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [SQM120N06-3M5L-GE3](#) [TK31J60W5,S1VQ\(O](#) [TK31J60W,S1VQ\(O](#) [TK16J60W,S1VQ\(O](#)  
[2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [NTE2384](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#)  
[DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)  
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)  
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)  
[MCQ7328-TP](#) [SSM3J143TU,LXHF](#) [DMN12M3UCA6-7](#) [PJMF280N65E1\\_T0\\_00201](#) [PJMF380N65E1\\_T0\\_00201](#)  
[PJMF280N60E1\\_T0\\_00201](#) [PJMF600N65E1\\_T0\\_00201](#) [PJMF900N65E1\\_T0\\_00201](#)