

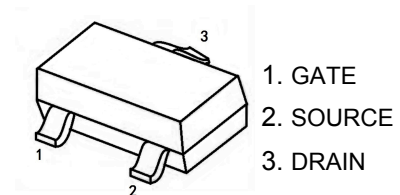
KY2301S

-20V P-Channel Mosfet

FEATURES

- $R_{DS(ON)} \leq 150m\Omega$ (120m Ω Typ.)
@ $V_{GS}=-4.5V$
- $R_{DS(ON)} \leq 230m\Omega$ (160m Ω Typ.)
@ $V_{GS}=-2.5V$

SOT-23



APPLICATIONS

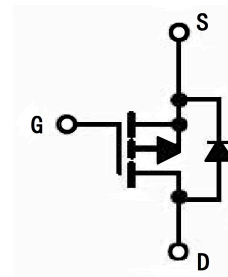
- PWM Applications
- Load Switch
- DC/DC

MARKING



Other mark : "A19T"

P-CHANNEL MOSFET



MAXIMUM RATINGS ($T_a=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	$T_a= 25^\circ C$	-2
		$T_a= 100^\circ C$	-1.3
I_{DM}	Pulsed Drain Current ^{note1}	-8	A
P_D	Power Dissipation	$T_a= 25^\circ C$	0.96
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	130	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ C$

KY2301S

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

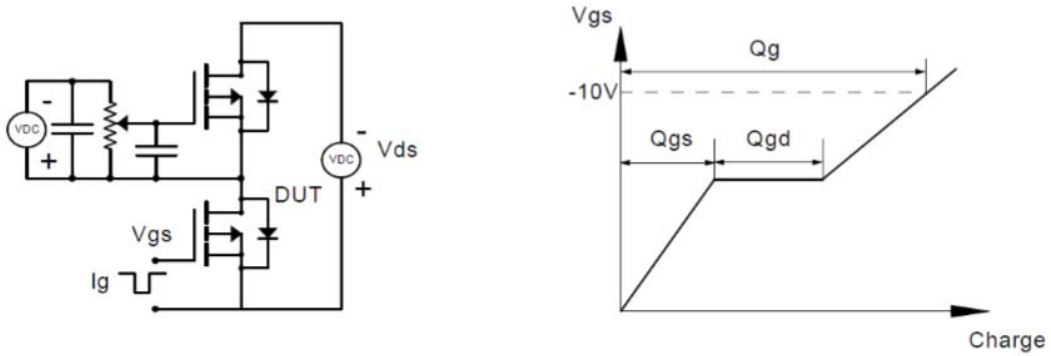
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -20V, V_{GS} = 0V,$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 12V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS} = -4.5V, I_D = -2A$	-	120	150	m Ω
		$V_{GS} = -2.5V, I_D = -1A$	-	160	230	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -10V, V_{GS} = 0V,$ $f = 1.0MHz$	-	250	-	pF
C_{oss}	Output Capacitance		-	43	-	pF
C_{rss}	Reverse Transfer Capacitance		-	24	-	pF
Q_g	Total Gate Charge	$V_{DS} = -10V, I_D = -2A,$ $V_{GS} = -4.5V$	-	2.3	-	nC
Q_{gs}	Gate-Source Charge		-	0.41	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	0.62	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -10V, R_L = 5\Omega$ $R_{GEN} = 3\Omega, V_{GS} = -4.5V$	-	10.2	-	ns
t_r	Turn-on Rise Time		-	5.3	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	20.8	-	ns
t_f	Turn-off Fall Time		-	8	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-2	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-8	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -2A$	-	-	-1.2	V

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

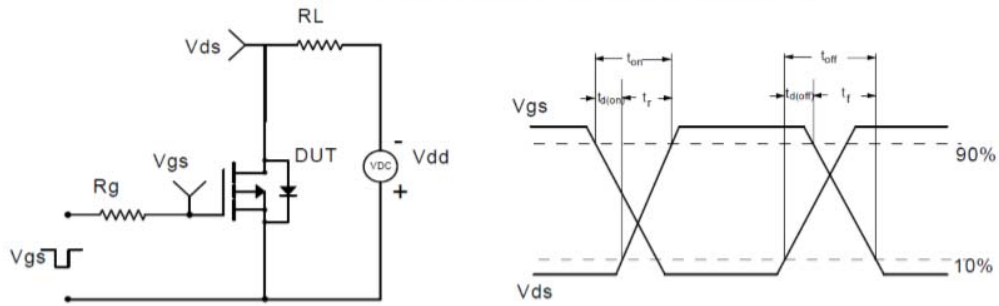
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

TYPICAL PERFORMANCE CHARACTERISTICS

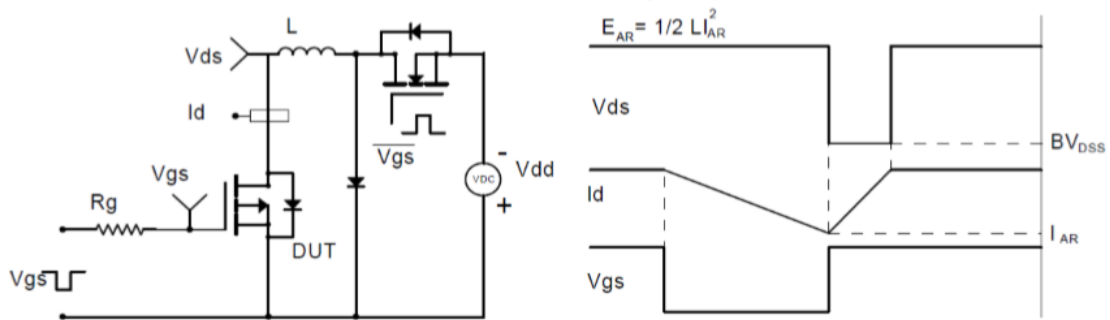
Gate Charge Test Circuit & Waveform



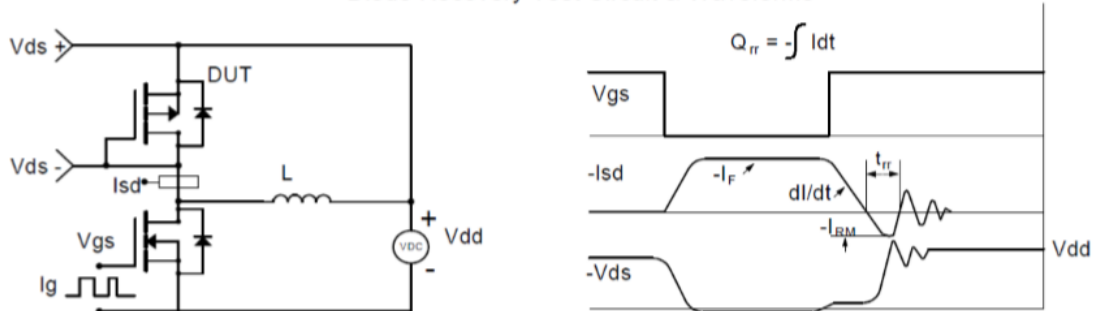
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

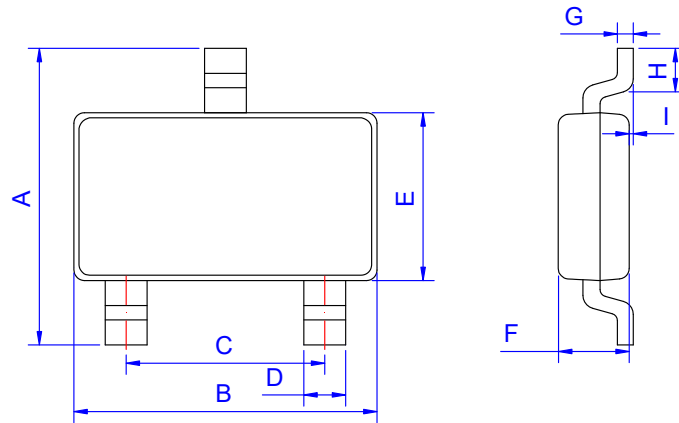


Diode Recovery Test Circuit & Waveforms



KY2301S

SOT-23 PACKAGE OUTLINE DRAWING



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.30	2.40	2.50	0.091	0.095	0.098
B	2.80	2.90	3.00	0.110	0.114	0.118
C	1.90 REF			0.075 REF		
D	0.35	0.40	0.45	0.014	0.016	0.018
E	1.20	1.30	1.40	0.047	0.051	0.055
F	0.90	1.00	1.10	0.035	0.039	0.043
G		0.10	0.15		0.004	0.006
H	0.20			0.008		
I	0		0.10	0		0.004

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