

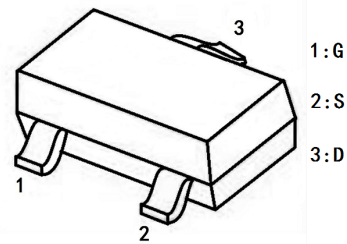
KY2305A

-20V P-Channel Mosfet

FEATURES

- $R_{DS(ON)} \leq 45m\Omega$ (35m Ω Typ.)
@ $V_{GS}=-4.5V$
- $R_{DS(ON)} \leq 70m\Omega$ (38m Ω Typ.)
@ $V_{GS}=-2.5V$
- $R_{DS(ON)} \leq 90m\Omega$ (50m Ω Typ.)
@ $V_{GS}=-1.8V$

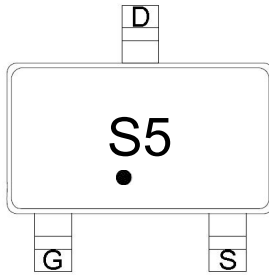
SOT-23



APPLICATIONS

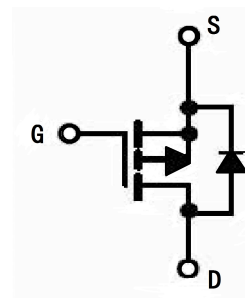
- Load Switch for Portable Devices
- DC/DC Converter

MARKING



Other marks: "2305 " or " S5B. "

P-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	± 12	
I_D	Continuous Drain Current	-4.1	A
I_{DM}	Pulsed Drain Current	-16	
P_D	Maximum Power Dissipation	0.83	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	

KY2305A

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

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
Static						
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS} = 0V, I_D = -250\mu A$	-20	-21.5		V
$V_{GS(th)}$	Gate-source threshold voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1	
I_{GSS}	Gate-source leakage	$V_{DS} = 0V, V_{GS} = \pm 10V$			± 100	nA
I_{DSS}	Zero gate voltage drain current	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
$R_{DS(on)}$	Drain-source on-state resistance <small>note1</small>	$V_{GS} = -4.5V, I_D = -3.5A$		35	45	m Ω
		$V_{GS} = -2.5V, I_D = -3A$		38	70	
		$V_{GS} = -1.8V, I_D = -2A$		50	90	
V_{SD}	Body diode voltage	$I_S = -3.3A$		-0.9	-1.2	V
Dynamic <small>note2</small>						
C_{iss}	Input capacitance	$V_{DS} = -4V, V_{GS} = 0V, f = 1MHz$		740		pF
C_{oss}	Output capacitance			290		
C_{rss}	Reverse transfer capacitance			190		
Q_g	Total gate charge	$V_{DS} = -4V, V_{GS} = -2.5V$ $I_D = -4.1A$		4.5	9	nC
Q_{gs}	Gate-source charge			1.2		
Q_{gd}	Gate-drain charge			1.6		
$t_{d(on)}$	Turn-on delay time	$V_{DS} = -4V,$ $R_L = 1.2\Omega, I_D = -3.3A,$ $V_{GEN} = -4.5V, R_G = 1\Omega$		13	20	nS
t_r	Rise time			35	53	
$t_{d(off)}$	Turn-off delay time			32	48	
t_f	Fall time			10	20	

Notes: 1. Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

2. Guaranteed by design, not subject to production testing.

Typical Performance Characteristics

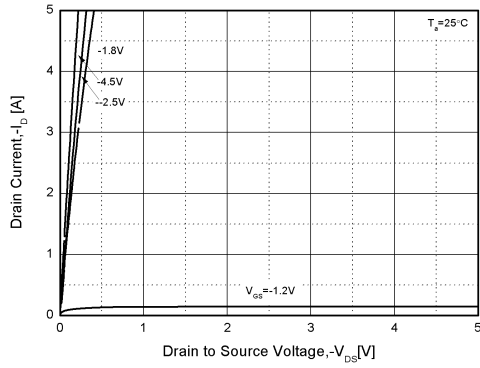


Figure1. Output Characteristics

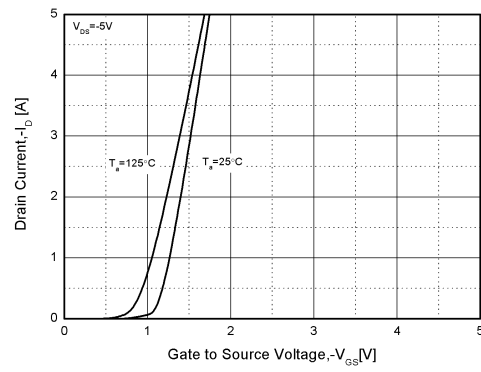


Figure2. Transfer Characteristics

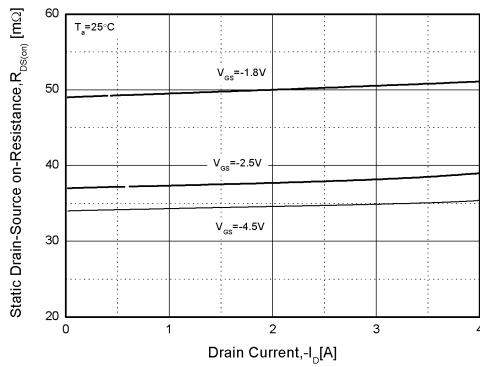


Figure3. Rds(on)-Drain Current

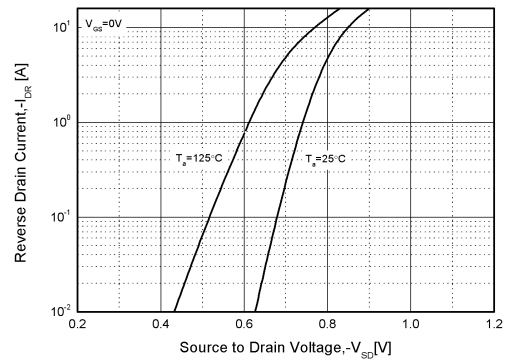


Figure4. Typical Source-Drain Diode Forward Voltage

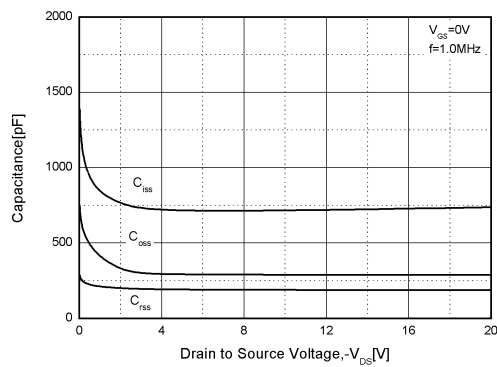


Figure5. Capacitance Characteristics

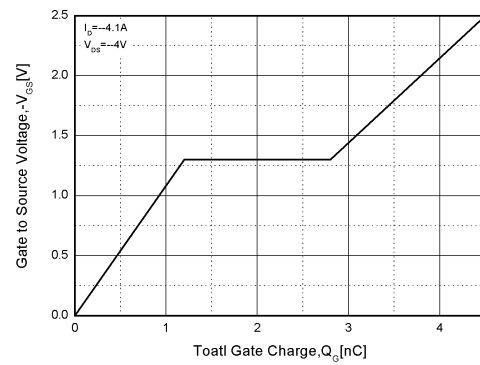


Figure6. Gate Charge

Typical Performance Characteristics (cont.)

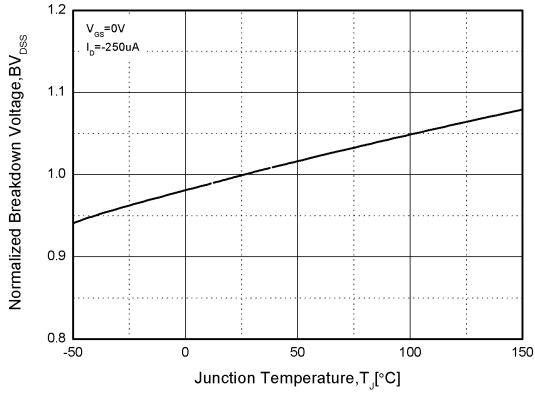


Figure7. Normalized Breakdown Voltage vs. Temperature

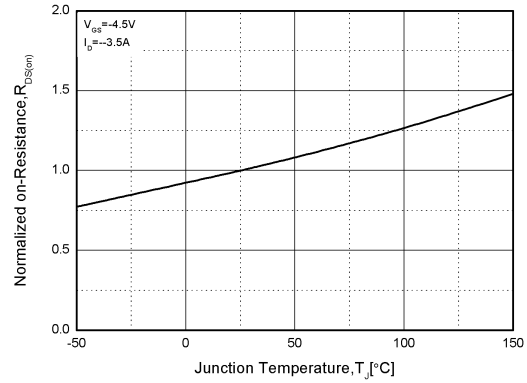


Figure8. Normalized on Resistance vs. Temperature

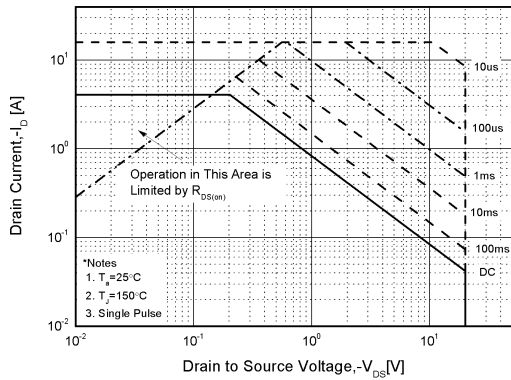


Figure9. Safe Operation Area

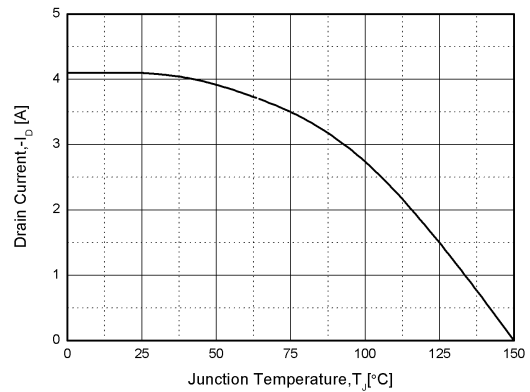
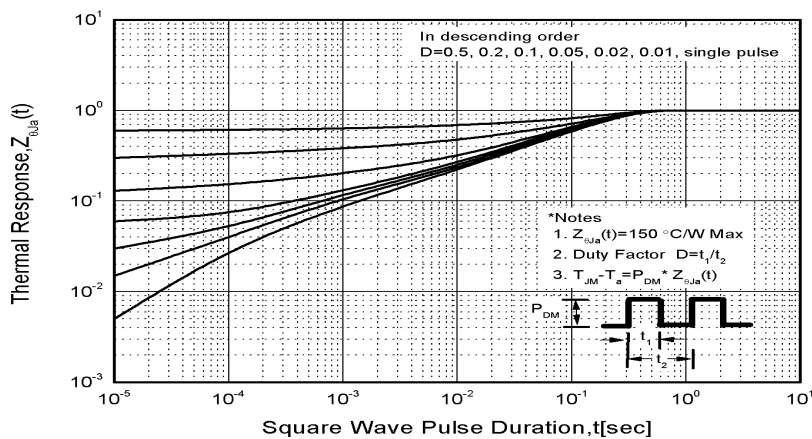
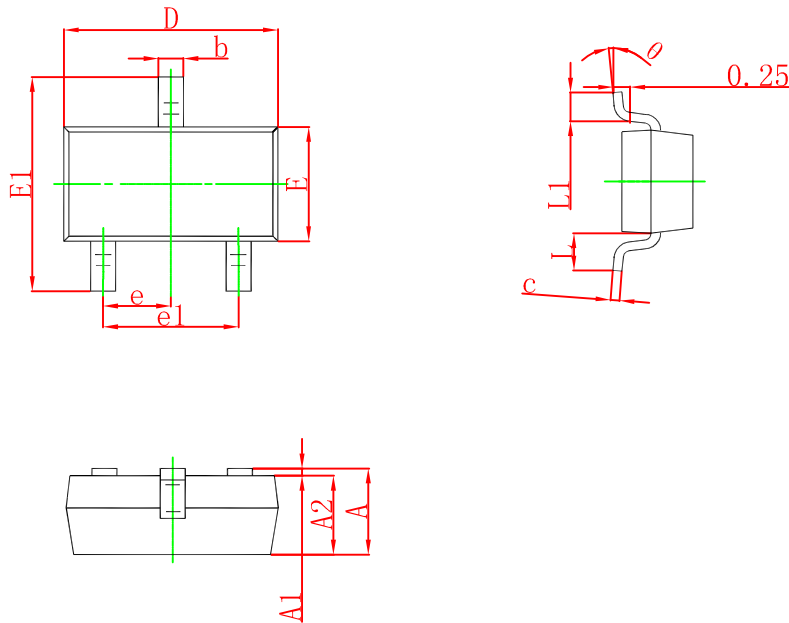


Figure10. Drain Current vs. Case Temperature



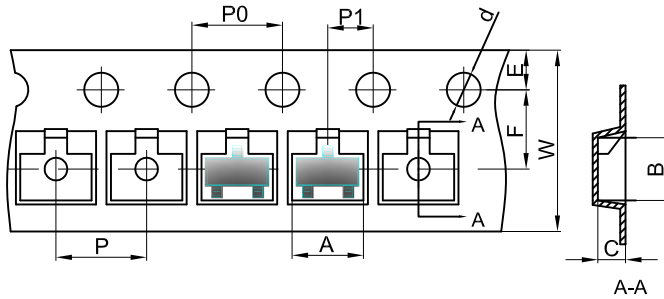
SOT-23 Package Outline Dimensions



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°

KY2305A

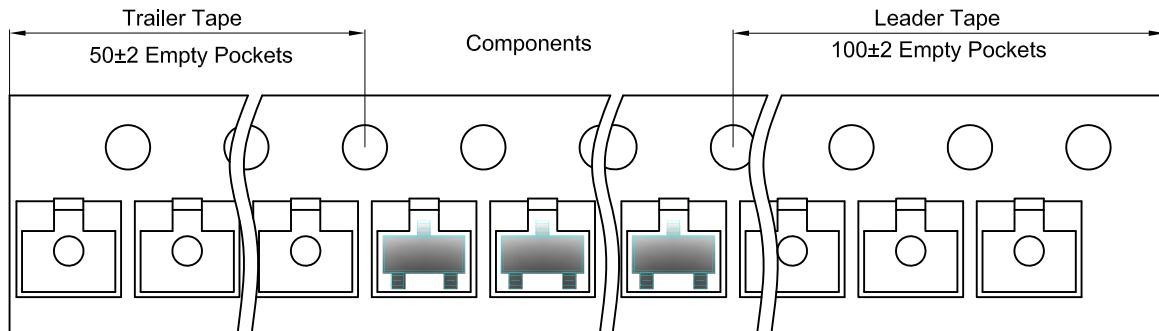
SOT-23 Embossed Carrier Tape



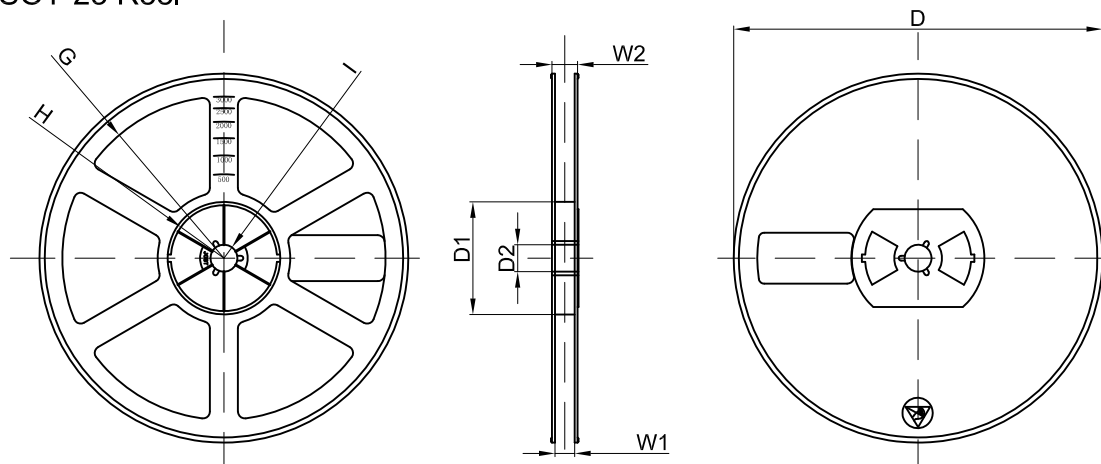
Dimensions are in millimeter

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	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

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