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自主封測 品質把控 售後保障

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電源管理



顯示驅動



二三極管



LDO穩壓器



觸摸芯片



MOS管



運算放大器



存儲芯片



MCU



串口通信

2301S A1SHB-TD(160K)

產品規格說明書

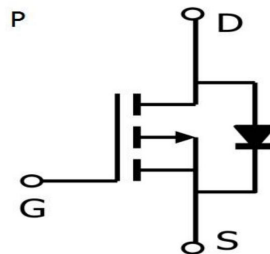
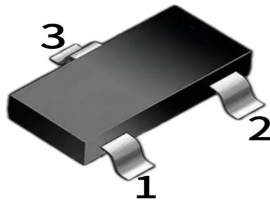
Features

- Trench FET Power MOSFET
- High Speed Switching

Product Summary

V_{DS}	-20V
I_D	-2.3A
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	<180m Ω
$R_{DS(ON)}$ (at $V_{GS}=-2.5V$)	< 200m Ω

SOT-23
1.BASE
2.EMITTER
3.COLLECTOR



Order Information

Product	Package	Marking	Packing
2301S -TD	SOT-23	A1SHB	3000PCS/Reel

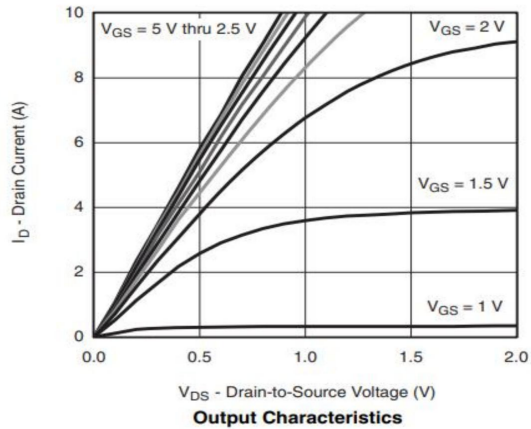
Maximum Ratings($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current	I_D	-2.3	A
Pulsed Drain Current ①	I_{DM}	-10	
Continuous Source-Drain Current(Diode Conduction)	I_S	-1.3	
Power Dissipation ②	P_D	0.35	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	357	$^{\circ}C/W$
Operating Junction	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$

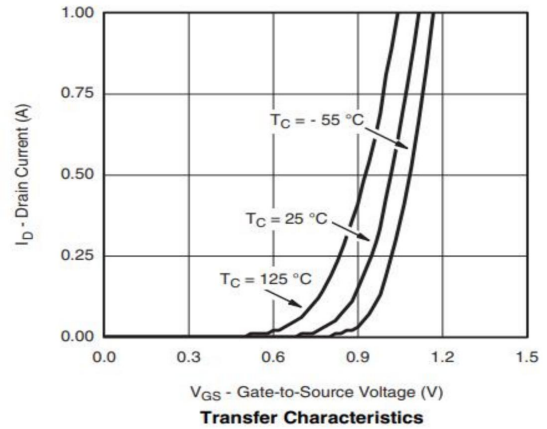
Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BVdss	VGS = 0V, ID = -250μA	-20			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = -250μA	-0.4		-1	V
Gate-Body leakage Current	IGSS	VDS =0V, VGS =±8V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = -18V, VGS =0V			-1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = -4.5V, ID = -2.3A		150	180	mΩ
		VGS = -2.5V, ID = -1A		185	200	mΩ
Forward Transconductance	gFs	VDS = -4.5V, ID = -2.3A		4		S
Diode Forward Voltage	VSD	IS= -0.8A, VGS=0V		-0.8	-1.3	V
Dynamic Parameters ④						
Input Capacitance	Ciss	VDS = -10V,VGS =0V, f=1MHz		405		pF
Output Capacitance	Coss			75		pF
Reverse Transfer Capacitance	Crss			55		pF
Total Gate Charge	Qg	VDS = -10V,VGS = -4.5V, ID = -2.3A		5.5	10	nC
		VDS = -10V,VGS = -2.5V, ID = -2.3A		3.3	6	nC
Gate Source Charge	Qgs			0.7		nC
Gate Drain Charge	Qgd			1.3		nC
Gate Resistance	Rg	f=1MHz		6.0		Ω
Switching Parameters ④						
Turn-On DelayTime	td(on)	VDD=-6V RL=6Ω, ID ≈-1A, VGEN=-4.5V, Rg=6Ω		10	20	ns
Turn-On Rise Time	tr			35	60	ns
Turn-Off DelayTime	td(off)			30	50	ns
Turn-Off Fall Time	tf			10	20	ns
Note :						
1. Repetitive Rating : Pulse width limited by maximum junction temperature.						
2. Surface Mounted on FR4 Board, t < 5 sec.						
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.						
4. Guaranteed by design, not subject to production testing.						

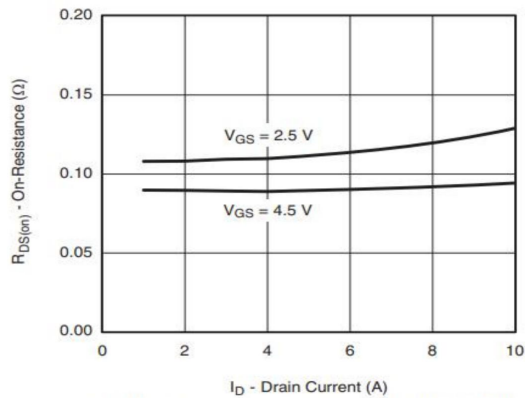
Typical Electrical and Thermal Characteristics



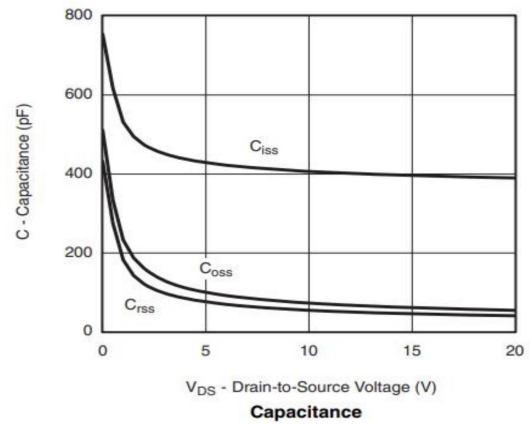
Output Characteristics



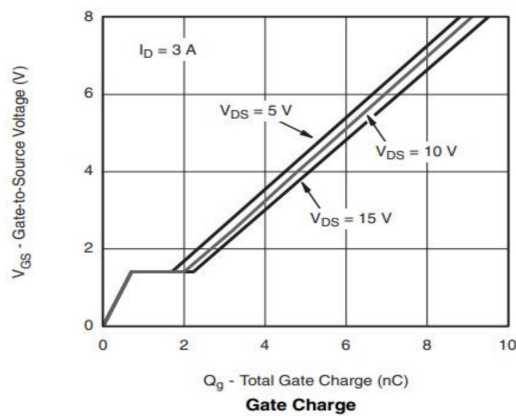
Transfer Characteristics



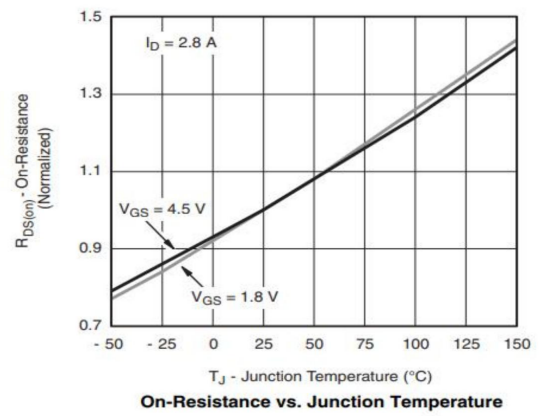
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

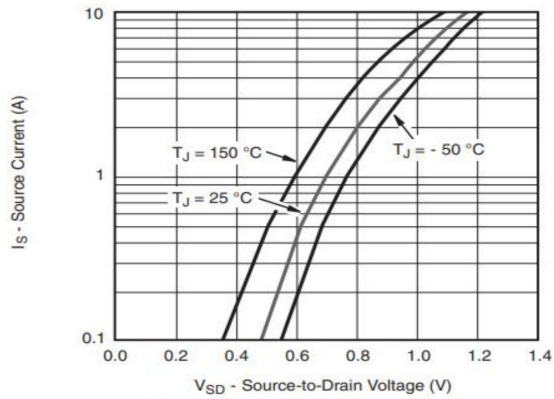


Gate Charge

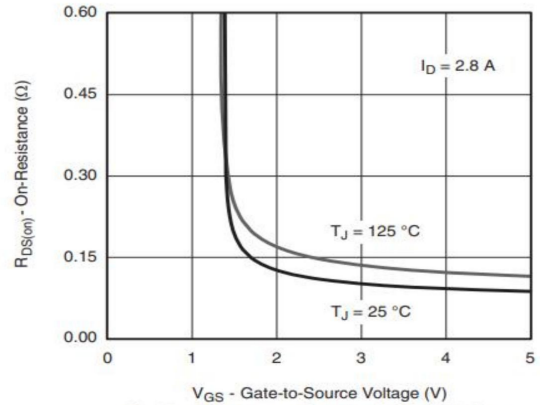


On-Resistance vs. Junction Temperature

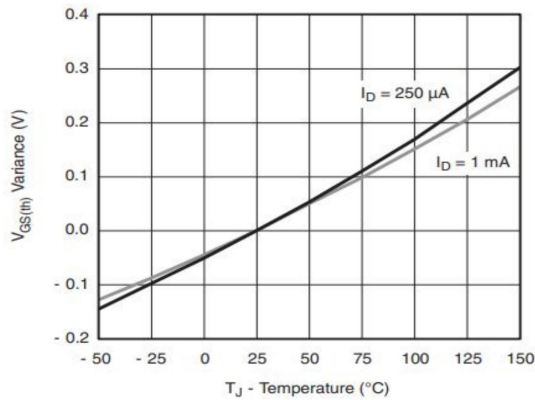
Typical Electrical and Thermal Characteristics



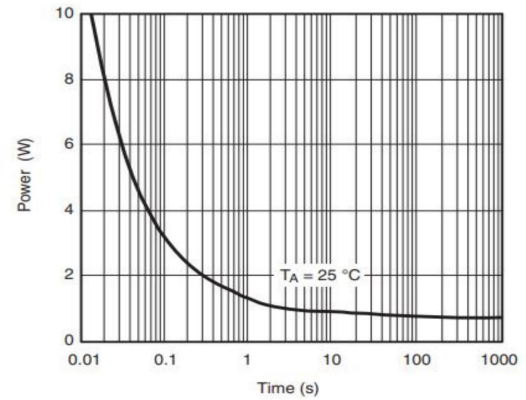
Source-Drain Diode Forward Voltage



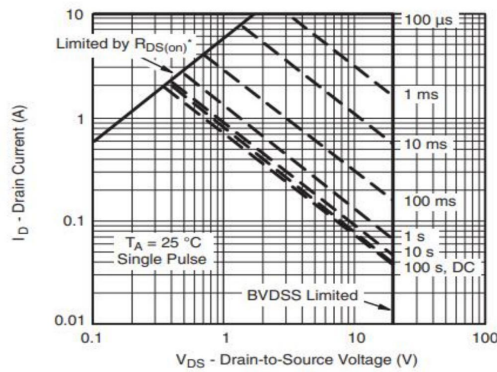
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



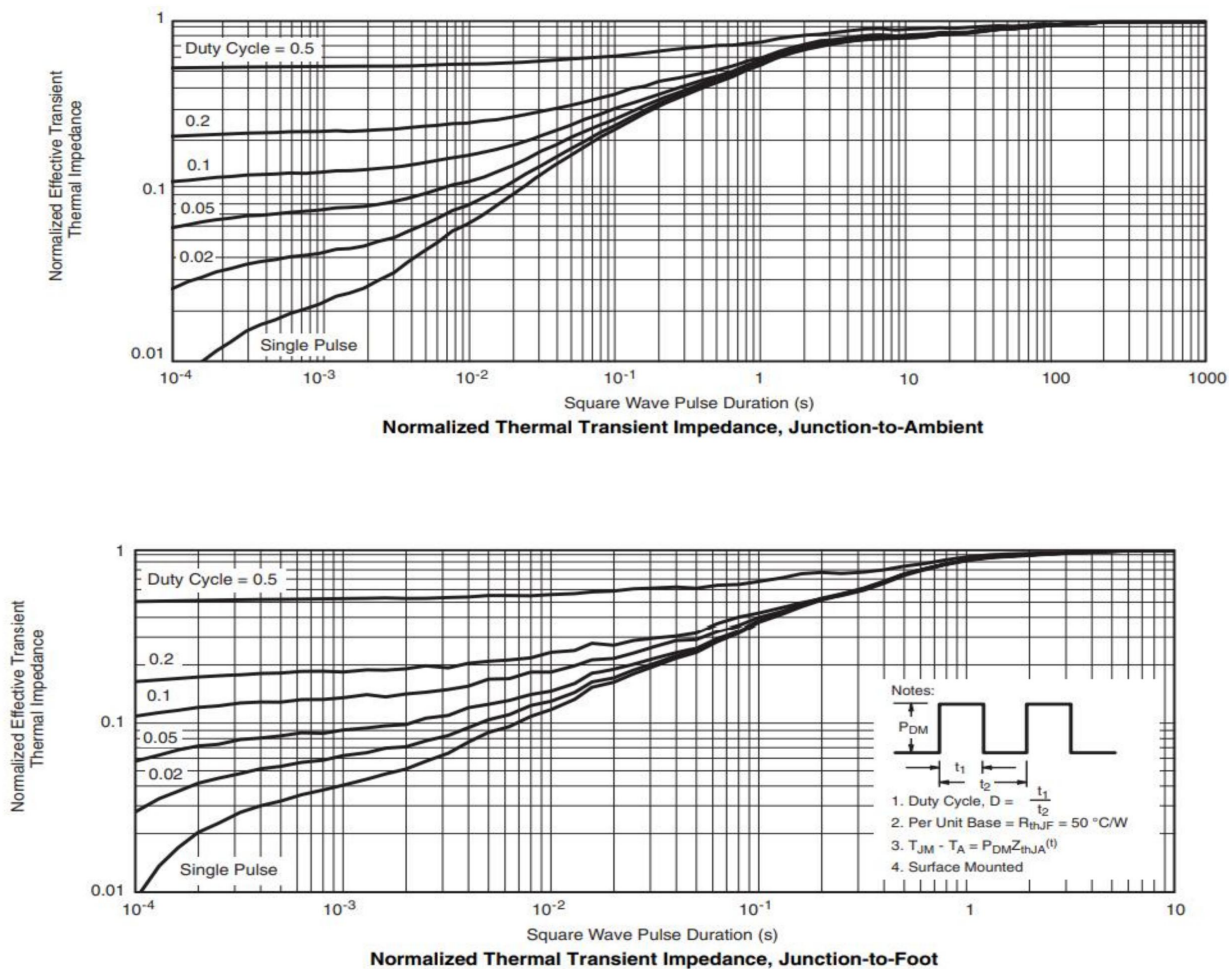
Single Pulse Power



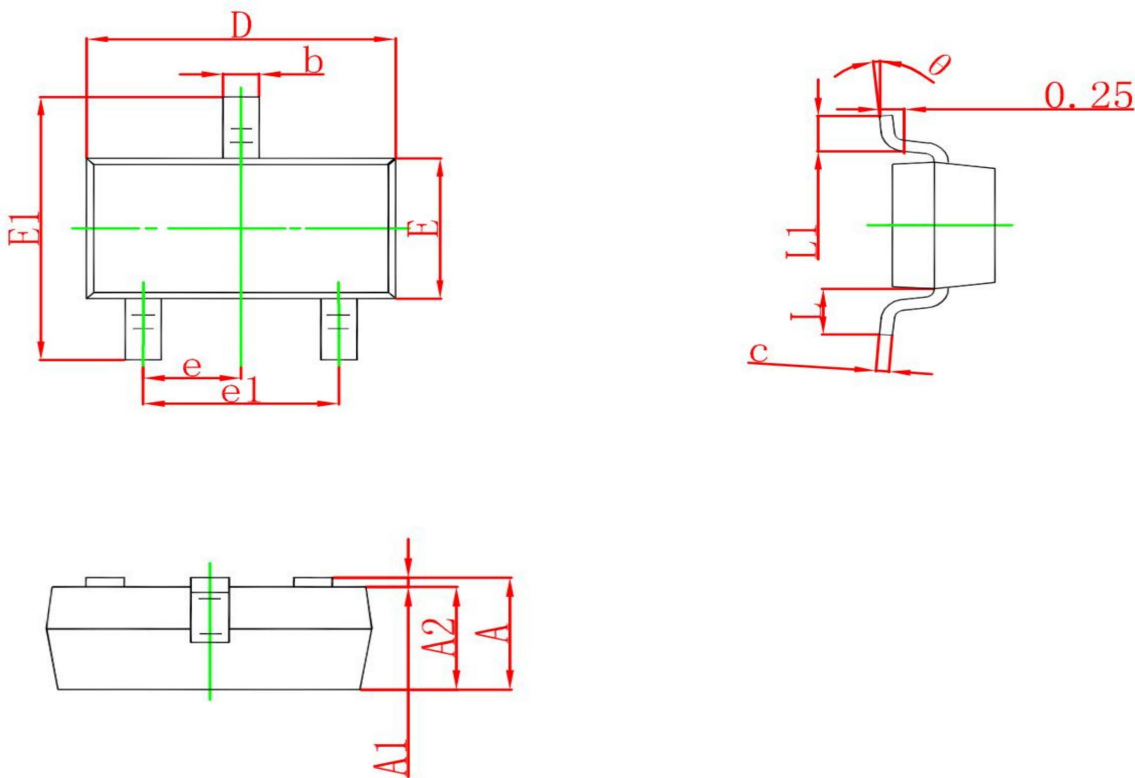
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

Typical Electrical and Thermal Characteristics



SOT-23 Package Outline Dimesions



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°