

General Features

- 20V,4A
- $R_{DS(on)}=Typ\ 23m\Omega@V_{GS}=4.5V$
- $R_{DS(on)}=Typ\ 28m\ \Omega@V_{GS}=2.5V$
- SOT23

Application

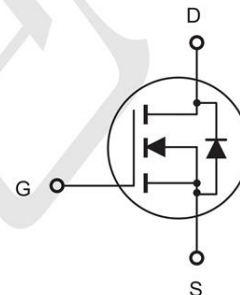
- Battery protection
- Load switch
- Power management

Package and Pin Configuration



MARKING =2300S Or 2300

Circuit diagram



Absolute 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}	± 10	V
Continuous Drain Current @25°C (note 1)	I_D	4.0	A
Power Dissipation @25°C (note 1)	P_D	1.0	W
Storage Temperature	T_{STG}	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

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Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Threshold Voltage ^(Note 2)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	0.9	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Drain-Source On-Resistance ^(Note 2)	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=4.5A$		23	25	m Ω
		$V_{GS}=2.5V, I_D=4.0A$		28	38	
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=4.5A$	5.0			S
Dynamic Characteristics^(Note 3)						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		482		pF
Output Capacitance	C_{oss}			85		
Reverse Transfer Capacitance	C_{rss}			52		
Switching Characteristics^(Note 3)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V, R_L=2.8\Omega, V_{GS}=4.5V, I_D=1A, R_{GEN}=6\Omega$		13		ns
Turn-On Rise Time	t_r			54		
Turn-Off Delay Time	$t_{d(off)}$			18		
Turn-Off Fall Time	t_f			11		
Total Gate Charge	Q_g	$V_{DS}=10V, I_D=4.5A, V_{GS}=4.5V$		4.2		nC
Gate-Source Charge	Q_{gs}			0.9		
Gate-Drain Charge	Q_{gd}			1.4		
Source-Drain Diode characteristics						
Drain-Source Diode Forward Current	I_S	$V_{GS}=0V, I_S=1A$			4.0	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A$		0.8	1.2	V

Curve Characteristics

Fig. 1 - Output Characteristics

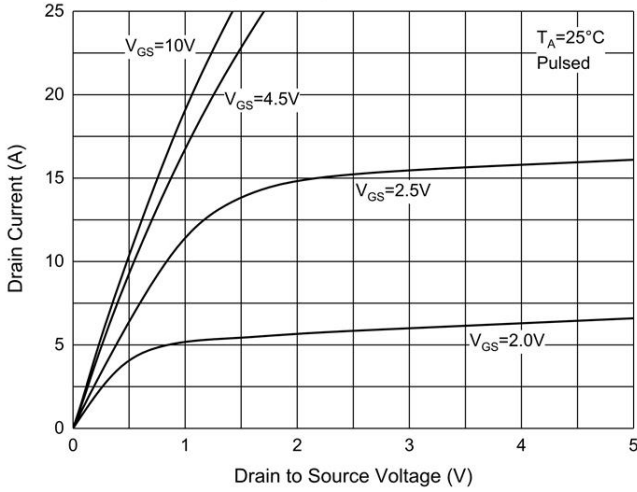


Fig. 2 - Transfer Characteristics

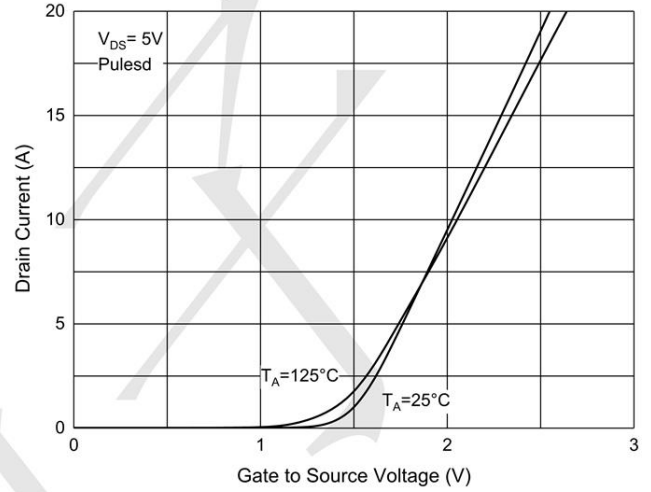


Fig. 3 - Capacitance Characteristics

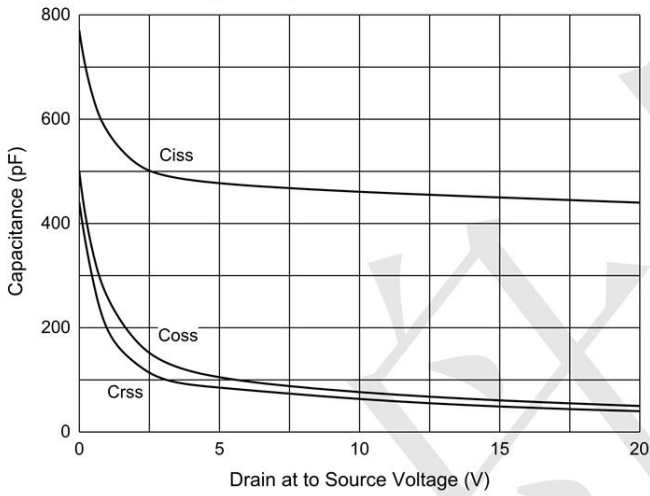


Fig. 4 - $R_{DS(ON)}$ —Temperature

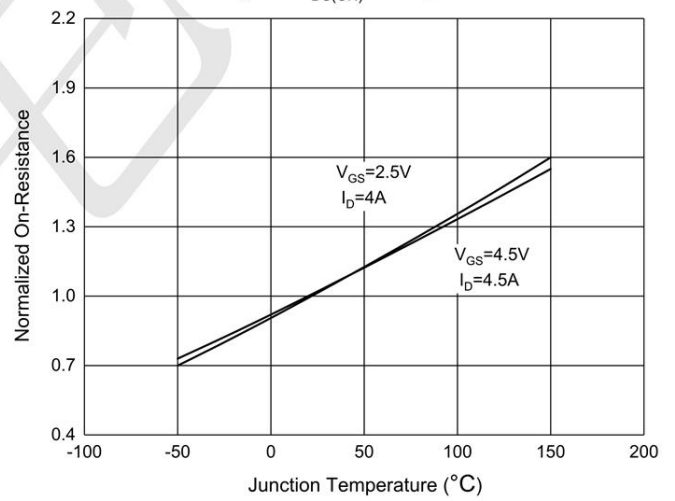


Fig. 5 - Threshold Voltage

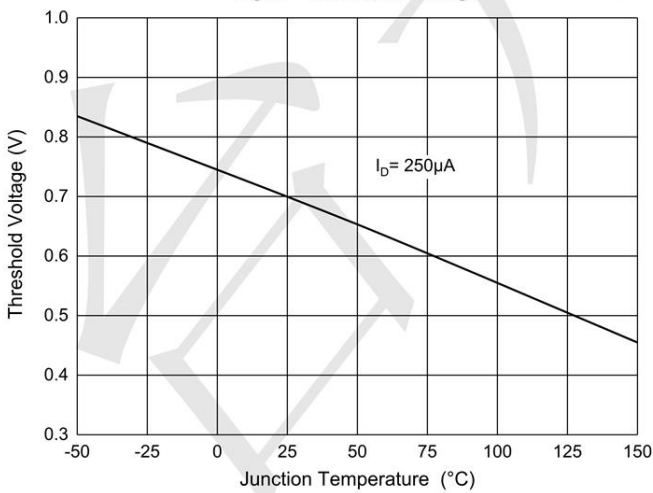
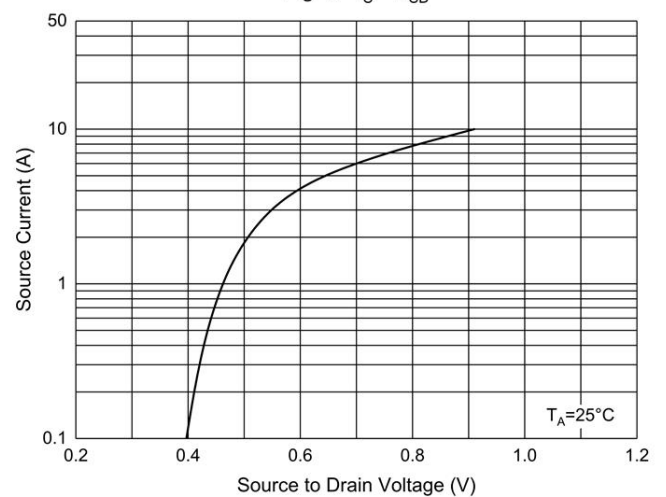
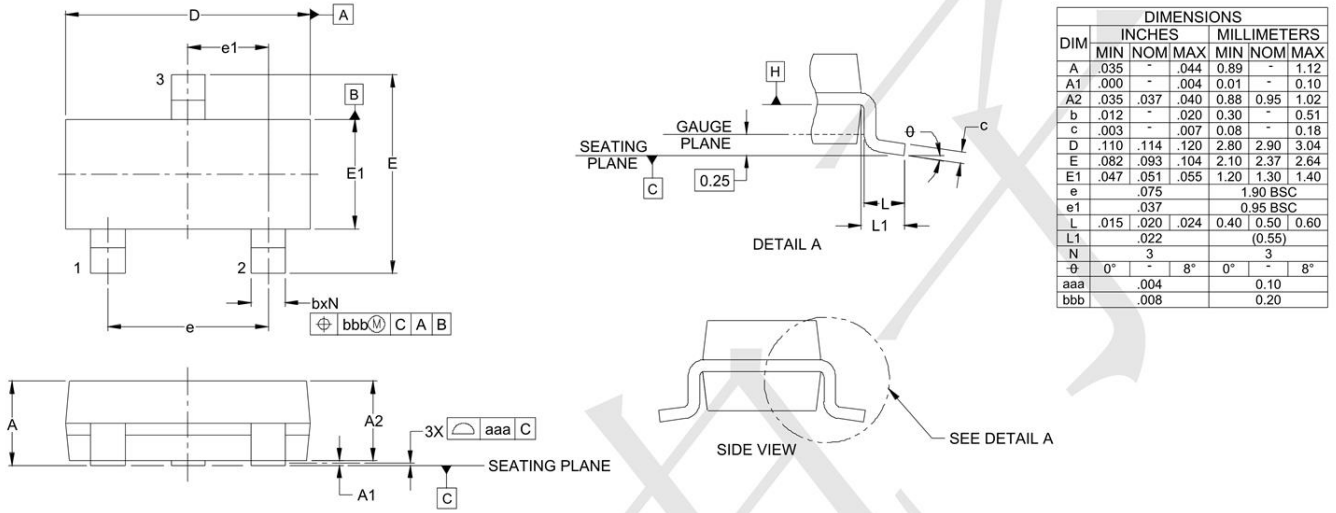


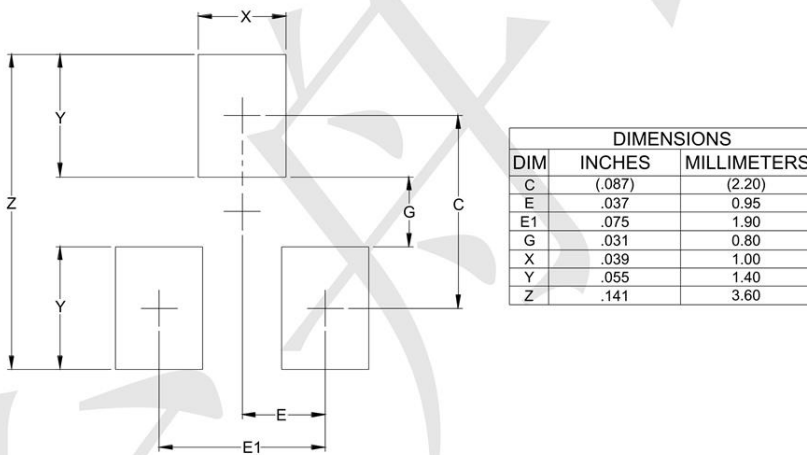
Fig. 6 - I_S — V_{SD}



Outline Drawing - SOT23



Land Pattern - SOT23



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