

General Description



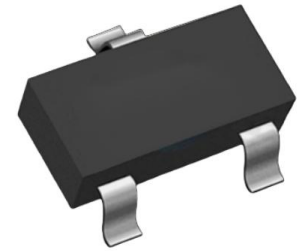
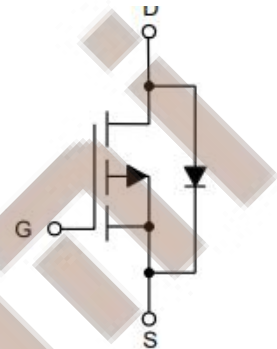
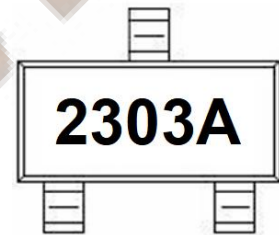
$V_{(BR)DSS}$	$R_{DS(on) MAX}$	$I_D Max.$
-30V	45m Ω @-1.0V	-4A
	65m Ω @-4.5V	

Features

- Trench FET Power MOSFET
- Load Switch for Portable Devices
- DC/DC Converter

Mechanical Data

- SOT-23-3L Small Outline Plastic Package.
- Epoxy UL: 94V-0.
- Mounting Position: Any.



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
2303A	SOT-23-3L	2303A	3000

Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Parameter	Symbols	Value	Units
Drain-Source Voltage	VDS	-30	V
Gate-Source Voltage	VGS	±20	V
Continuous Drain Current	ID	-4	A
Power Dissipation	PD	1.4	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-50-+150	°C
Thermal Resistance From Junction to Ambient (note 2)	R θ JA	125	°C/W

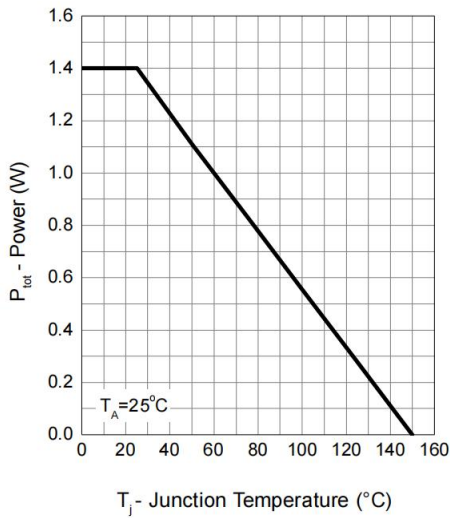
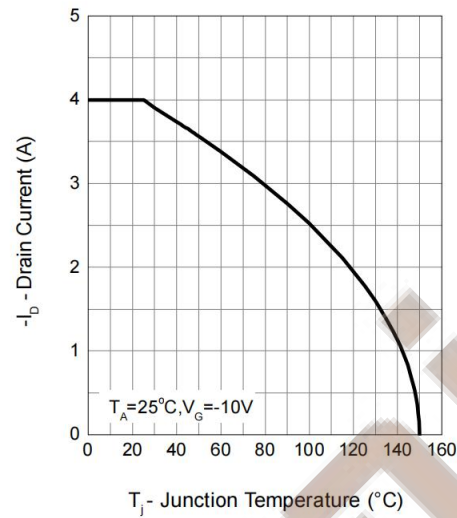
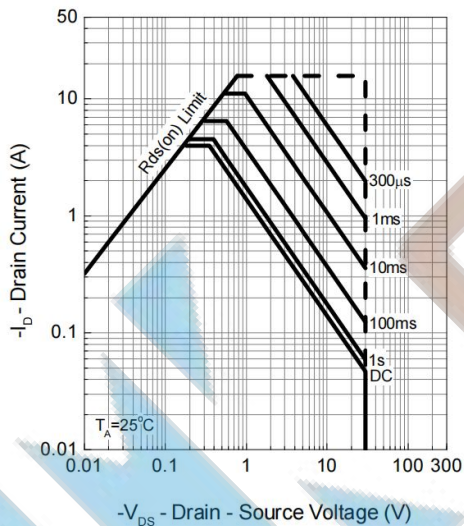
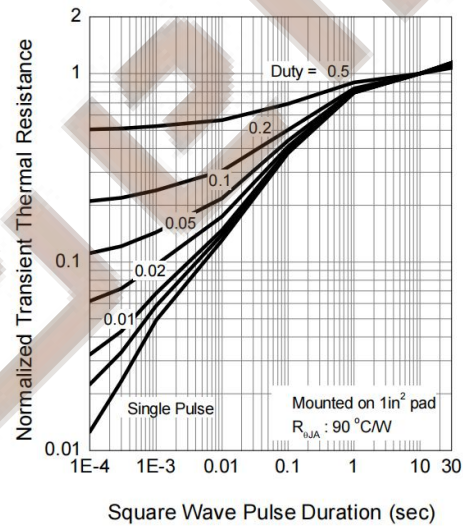
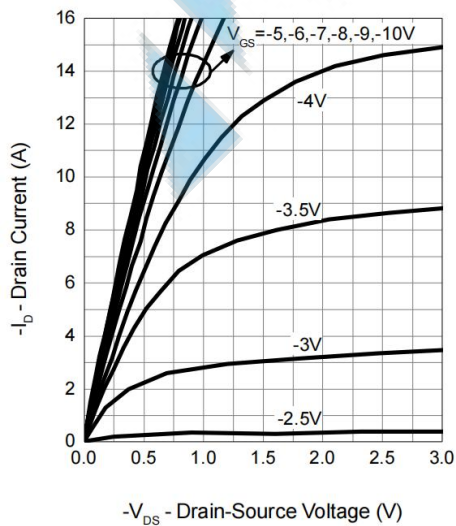
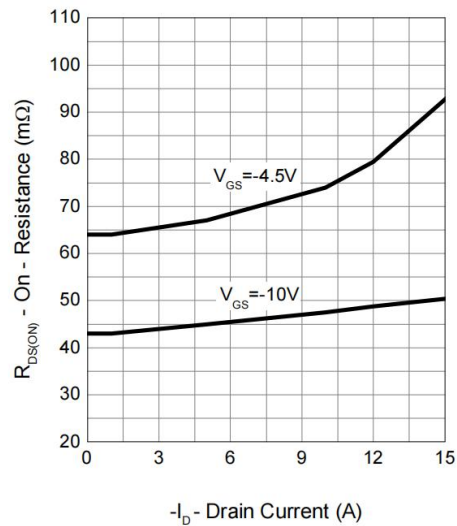
Electrical Characteristics (T_J=25°C, unless otherwise noted)

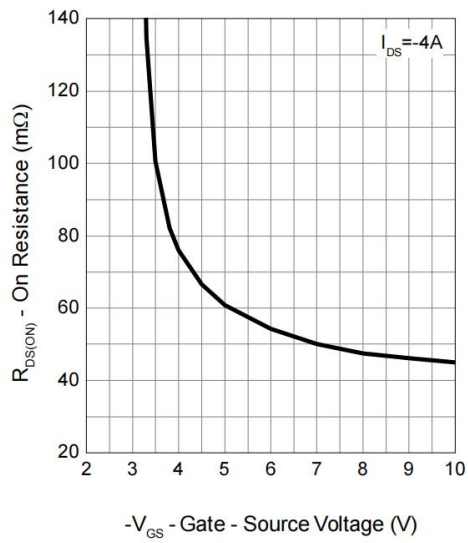
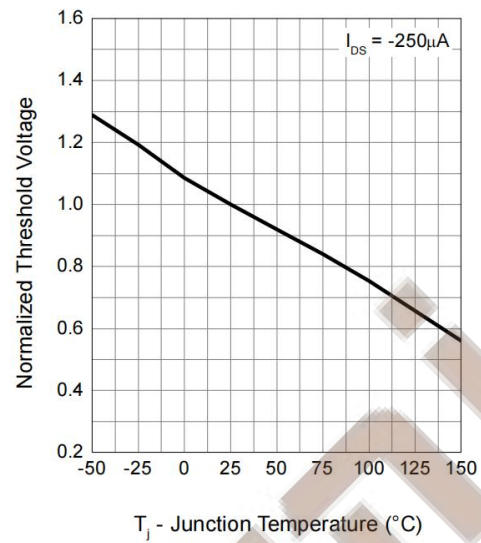
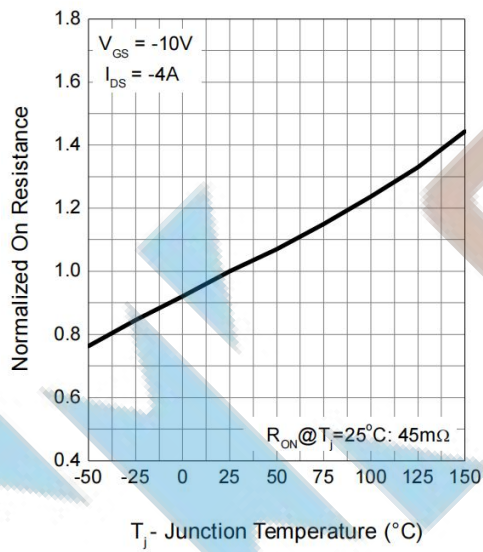
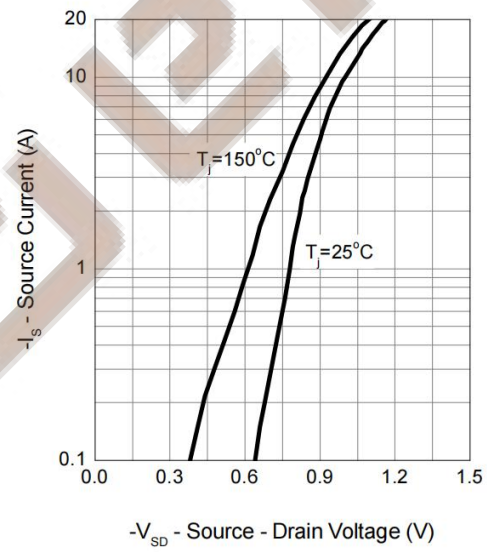
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=-250uA	-30			V
Zero Gate Voltage Drain current	IDSS	VDS=-24V, VGS=0V			-1	uA
Gate-body Leakage	IGSS	VGS=± 20V, VDS=0V			± 100	nA
On characteristics						
Drain-Source On-Resistance (note 1)	RDS(ON)	VGS=-10V, ID=-4A		45	56	m Ω
		VGS=-4.5V, ID=-2.5A		65	88	
Gate-Threshold voltage*	V GS (th)	VDS=VGS, ID=-250uA	-1.3	-1.8	-2.3	V
Dynamic characteristics (note 2)						
Input capacitance	Ciss	VDS=-15V, VGS=0V,f=1MHz		459		pF
Output capacitance	Coss			59		
Reverse Transfer capacitance	Crss			44		
Switching characteristics (note 2)						
Turn-on Time	td(on)	VDD=-15V, RL=15 Ω , IDS=-1A, VGEN=-10V, RG=6 Ω		8		ns
Rise time	tr			10		
Turn-off Time	td(off)			18		
Fall time	tf			8		
Drain-source diode characteristics and maximum ratings						
Diode forward voltage(note 1)	VSD	ISD=-1A, VGS=0V		-0.8	-1.0	V

Notes:

1. Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%.
2. These parameters have no way to verify.

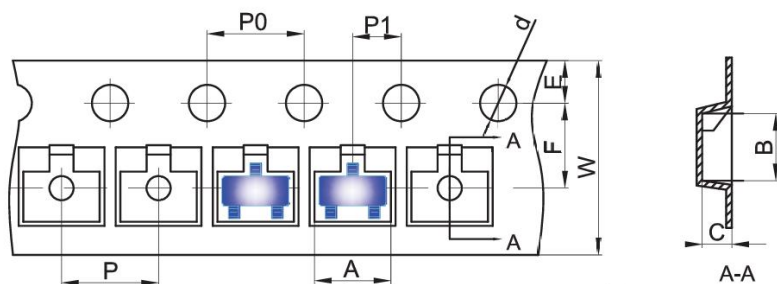
Typical Characteristics

Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance

Output Characteristics

Drain-Source On Resistance


Gate-Source On Resistance

Gate Threshold Voltage

Drain-Source On Resistance

Source-Drain Diode Forward


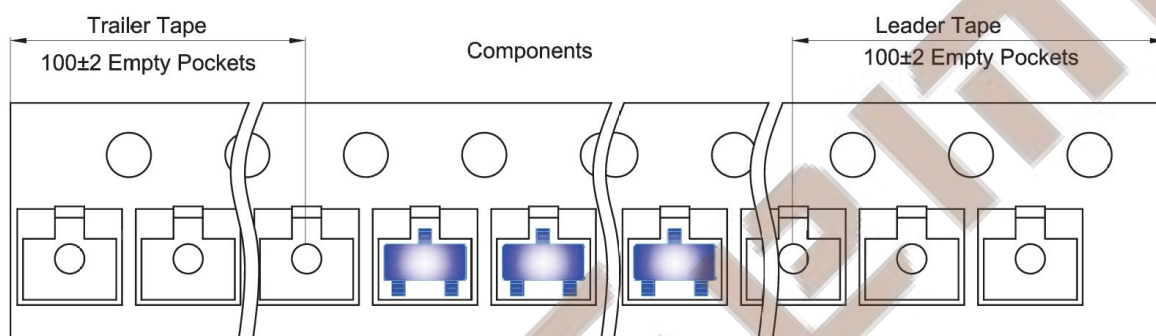
Package Information

Carrier Dimension(mm)

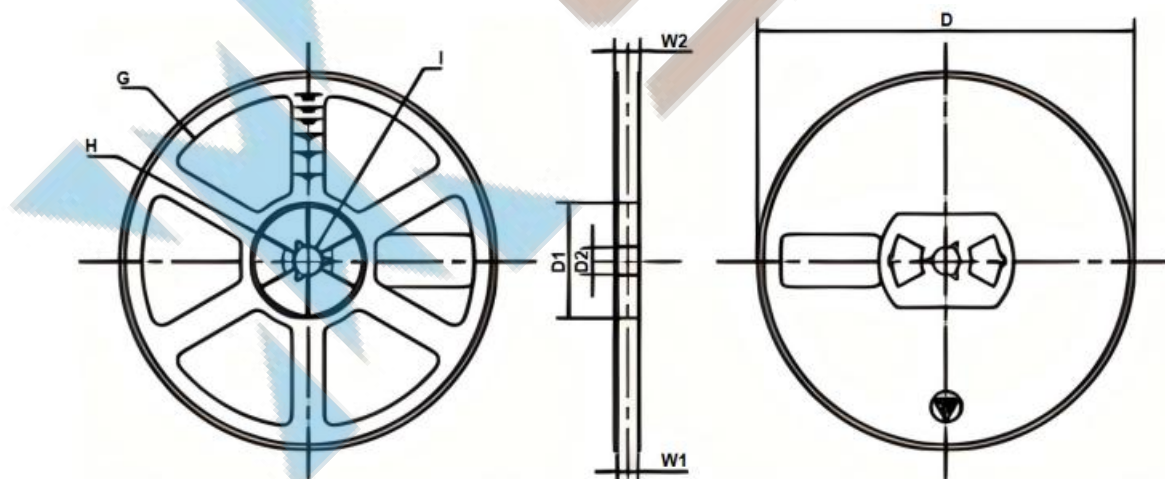


Dimensions are in millimeter

Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOT-23-3L	3.18	3.28	1.32	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00



Reel Dimension(mm)



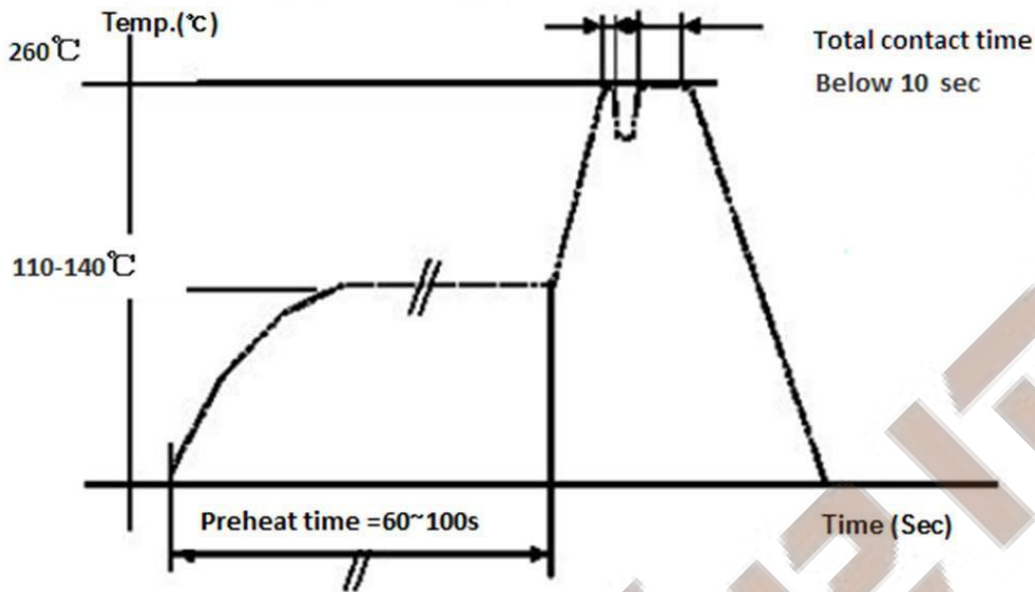
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

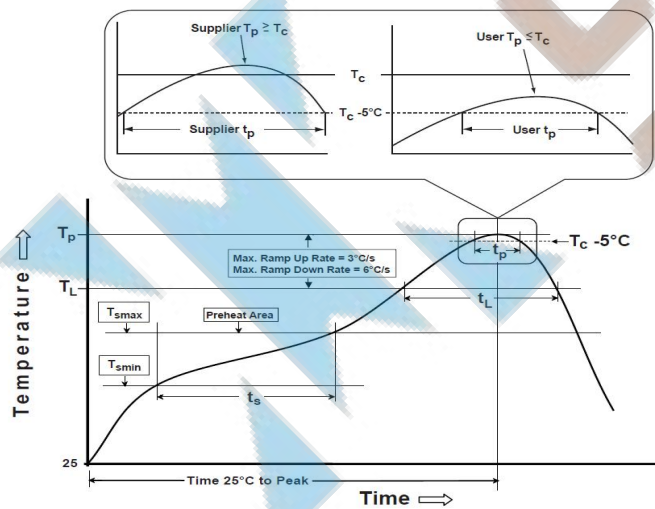
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT-23-3L	7'	178	3	210*208*203	45	440*400*230	180

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020

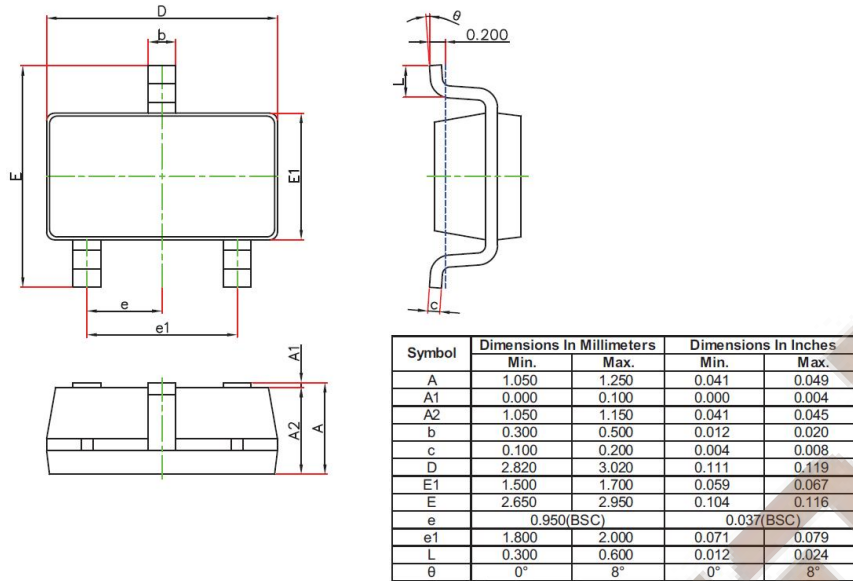


Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C(Melting Point of Solder)	3°C/sec
Time at Temp.>217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5°C
Time within 5°Cbelow Peak Temp.	20~40 Sec
Cooling Rate	6°C/sec (max)
Time from 25°C to Peak Temp.	8min (max)

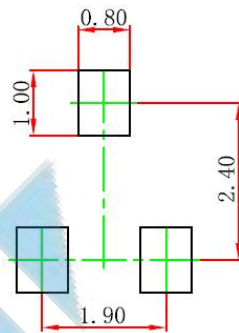
c) Manual Soldering

When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data



Suggested Pad Layout



Note:
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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