

Features

High-Side Switching
Low On-Resistance
Low Threshold
Fast Switching Speed

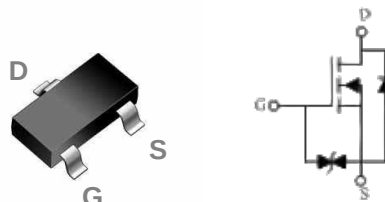
V_{DSS} 20 V
 I_D 0.75 A
 $R_{DS(ON)}$ 380 m Ω

34K

Application

Drivers: Relays, Solenoids,
Lamps, Hammers, Displays, Memories
Battery Operated Systems
Power Supply Converter Circuits
Load/Power Switching Cell Phones, Pagers

SOT-23 Pin Configuration



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DSS}	20	V
Typical Gate-Source Voltage	V_{GS}	± 12	
Drain Current-Continuous	I_D	0.75	A
Drain Current -Pulsed(note1)	I_{DM}	3	
Power Dissipation (note 2)	P_D	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Storage Temperature	T_j	150	$^\circ\text{C}$
Junction Temperature	T_{stg}	-55 ~+150	

Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise specified

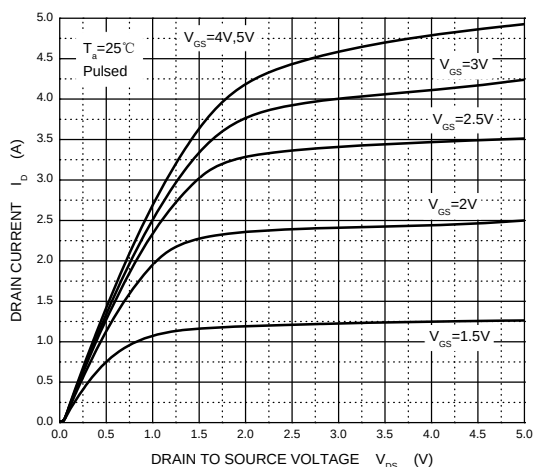
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
On/Off States						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate-Threshold Voltage(note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.35	0.54	1.1	
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$			± 20	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Drain-Source On-State Resistance(note 3)	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 650mA$		180	380	m Ω
		$V_{GS} = 2.5V, I_D = 550mA$		220	450	
		$V_{GS} = 1.8V, I_D = 450mA$		300	800	
Forward Transconductance	g_{FS}	$V_{DS} = 10V, I_D = 800mA$	1			S
Dynamic Characteristics(note 4)						
Input Capacitance	C_{ISS}	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$		79	120	pF
Output Capacitance	C_{OSS}			13	20	
Reverse Transfer Capacitance	C_{RSS}			9	15	
Switching Times (note 4)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 500mA,$ $V_{GS} = 4.5V, R_G = 10\Omega$		6.7		ns
Rise Time	t_r			4.8		
Turn-Off Delay Time	$t_{d(off)}$			17.3		
Fall Time	t_f			7.4		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage (note 3)	V_{SD}	$I_S = 0.15A, V_{GS} = 0V$			1.2	V

Notes:

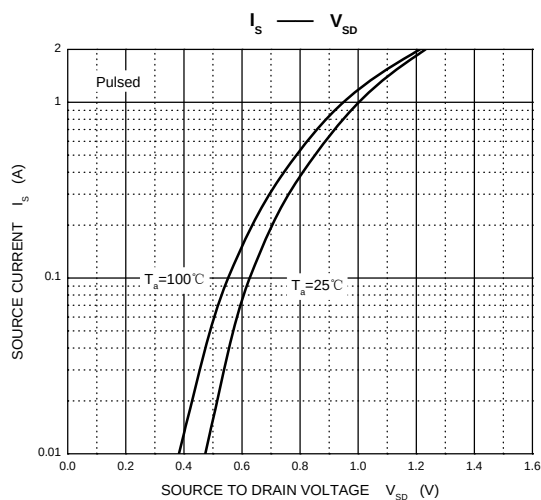
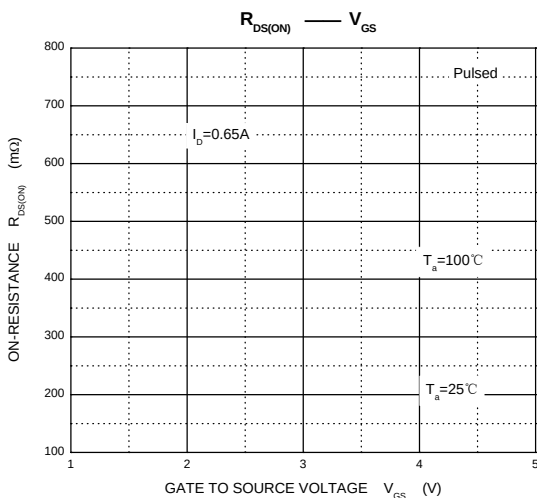
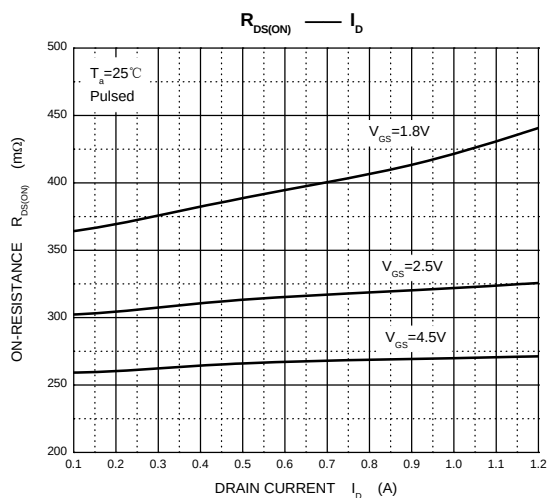
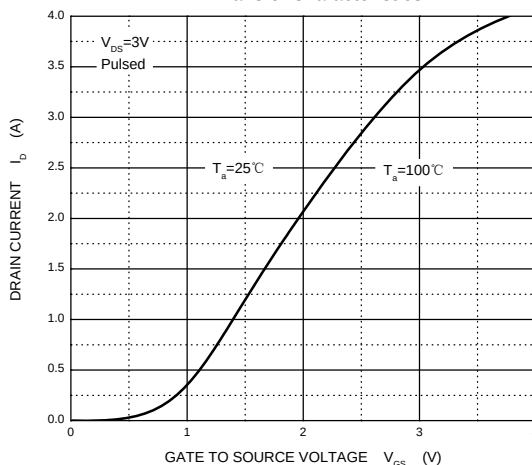
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at $T_A=25^\circ\text{C}$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. These parameters have no way to verify.

RATING AND CHARACTERISTIC CURVES

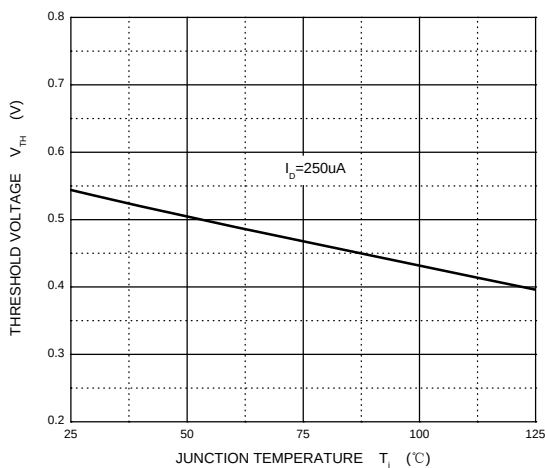
Output Characteristics



Transfer Characteristics

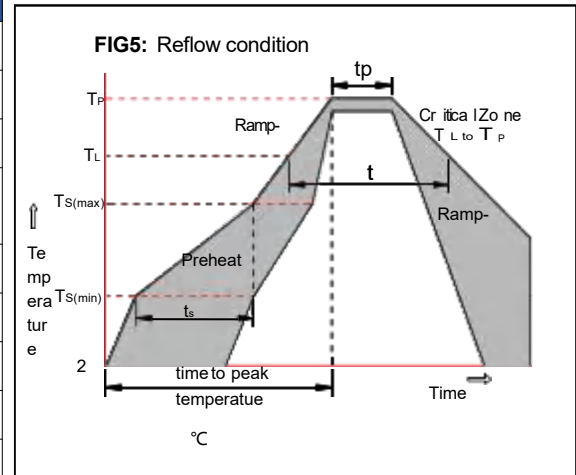


Threshold Voltage



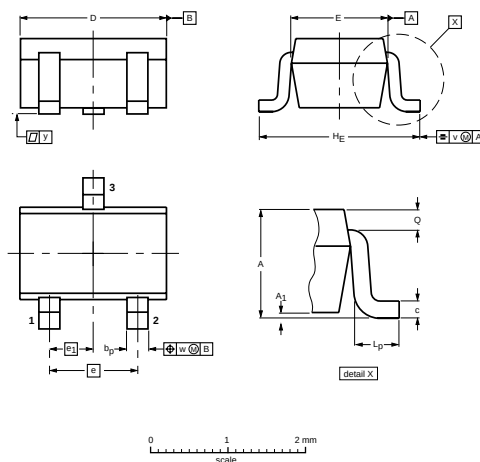
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



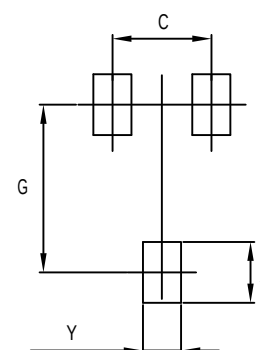
Package Dimensions & Suggested Pad Layout

SOT-323



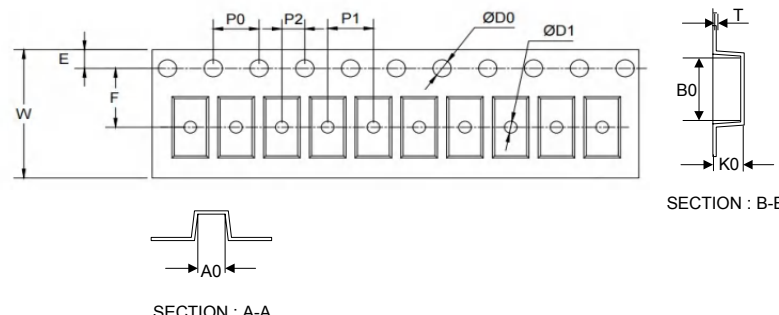
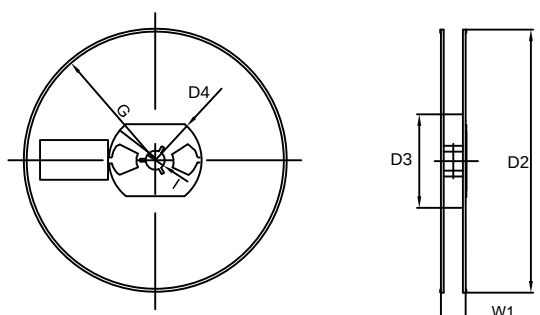
DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2



Dimensions	Value (in mm)
C	1.30
G	2.00
X	0.90
Y	0.65

Tape & reel specification

Tape		Symbol	Dimension (mm)
		P0	4.00±0.20
		P1	4.00±0.20
		P2	2.00±0.20
		D0	1.55±0.20
		D1	1.00±0.20
		E	1.55±0.25
		F	3.60±0.20
		W	8.00±0.20
		A0	2.50±0.20
		B0	2.60±0.20
		K0	1.40±0.20
		T	0.20±0.20
		D2	177.0±5.0
		D3	55Min.
7" Reel		D4	R24.6±2.0
		G	R82.0±2.0
		I	13.0±2.0
		W1	10.20±3.0
		Quantity: 3000PCS	