V_{DSS}	55 V
I_D	300 mA
$R_{DS(ON)}$	1.2 Ω

Features

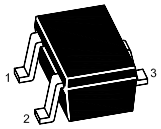
55V,300mA, RDS(ON) =1.2Ω@VGS = 10V
Improved dv/dt capability
Fast switching
Green Device Available

8KW

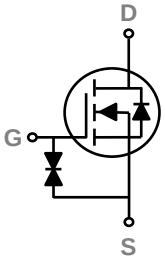
Applications

Notebook
Load Switch
Battery Protection
Hand-held Instruments

SOT-323



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	55	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (T_A=25℃)	300	mA
	Drain Current – Continuous (T_A=70℃)	240	mA
I_{DM}	Drain Current – Pulsed[1]	1.2	A
P_D	Power Dissipation (T_A=25℃)	313	mW
	Power Dissipation – Derate above 25℃	2.5	mW/℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	450	℃/W

Electrical Characteristics (T_a=25℃unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	55	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	0.05	---	V/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=48V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=55V , V_{GS}=0V , T_J=85℃	---	---	400	nA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±6	uA

On Characteristics

$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=0.3A	---	1.2	1.5	Ω
		V_{GS}=4.5V , I_D=0.2A	---	1.5	2.3	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.8	1.1	1.6	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	3	---	mV/℃

Dynamic and switching Characteristics

C_{iss}	Input Capacitance	V_{DS}=30V , V_{GS}=0V , F=1MHz	---	23	---	pF
C_{oss}	Output Capacitance		---	16	---	
C_{rss}	Reverse Transfer Capacitance		---	10	---	

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	300	mA
I_{SM}	Pulsed Source Current		---	---	600	mA
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=0.3A , T_J=25℃	---	---	1.4	V

Note :
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

RATING AND CHARACTERISTIC CURVES

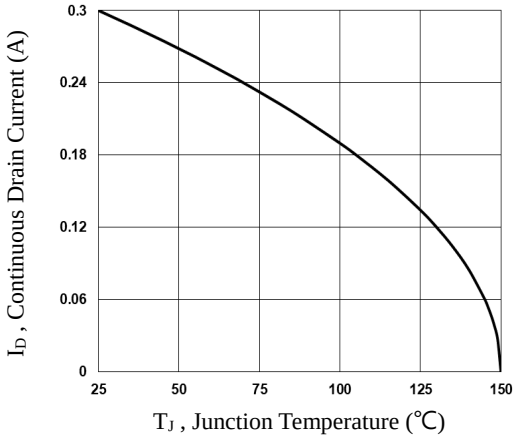


Fig.1 Continuous Drain Current vs. T_C

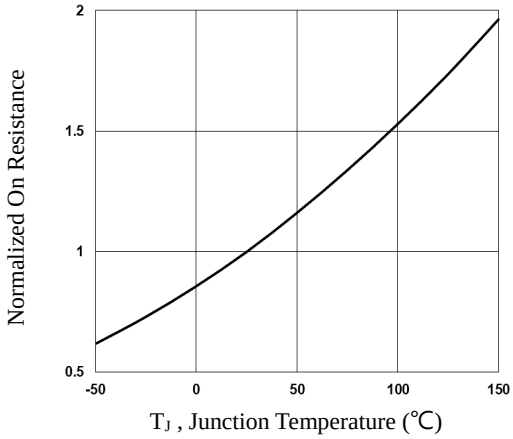


Fig.2 Normalized RDSON vs. T_J

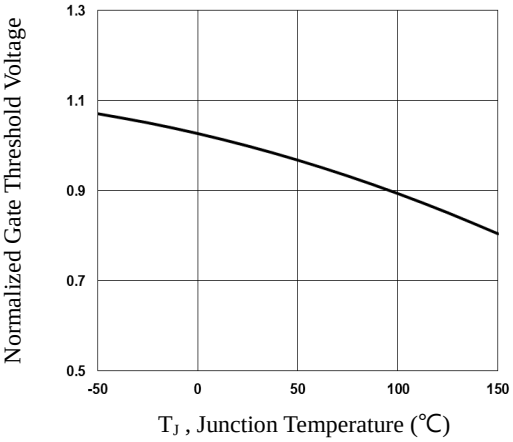


Fig.3 Normalized V_{th} vs. T_J

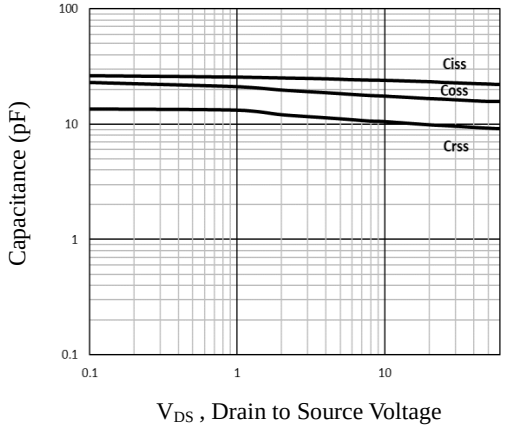


Fig.4 Capacitance Characteristics

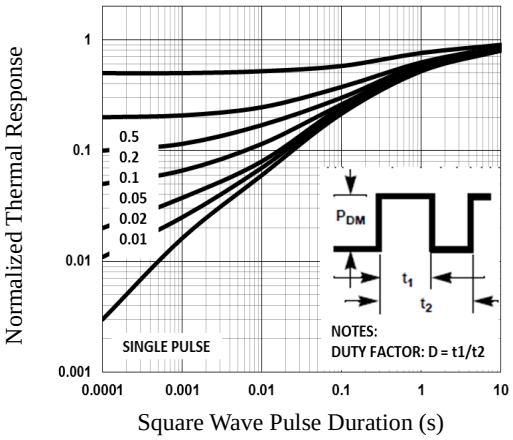


Fig.5 Normalized Transient Response

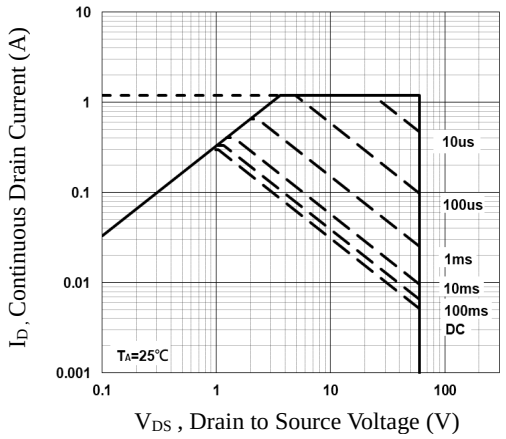
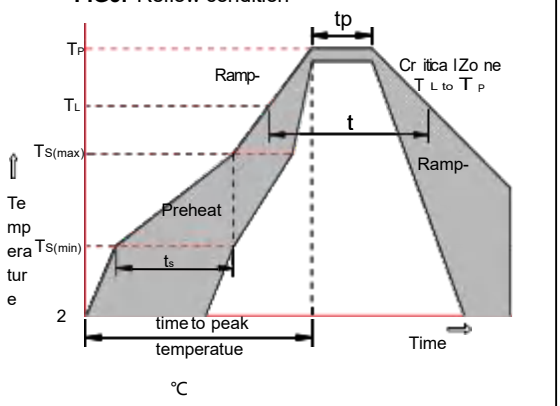


Fig.6 Maximum Safe Operation Area

Soldering parameters

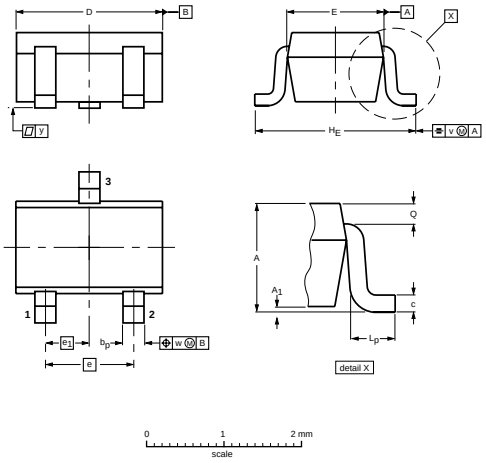
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid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

FIG5: Reflow condition



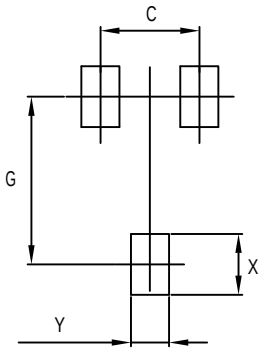
Package Dimensions & Suggested Pad Layout

SOT-323



DIMENSIONS (mm are the original dimensions)

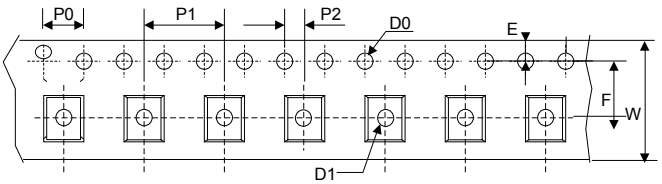
UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

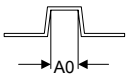


Dimensions	Value (in mm)
C	1.30
G	2.00
X	0.90
Y	0.65

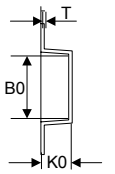
Tape & rell specification

Tape





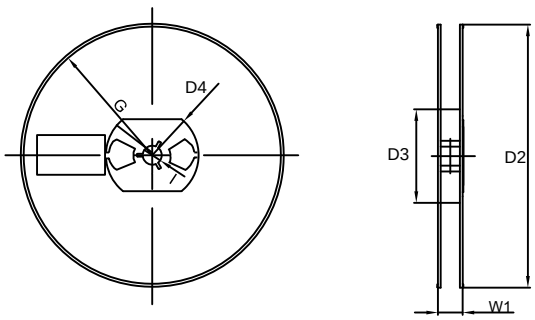
SECTION : A-A



SECTION : B-B

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

7” Reel



D2	177.0±5.0
D3	55Min.
D4	R24.6±2.0
G	R82.0±2.0
I	13.0±2.0
W1	10.20±3.0

Quantity: 3000PCS

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