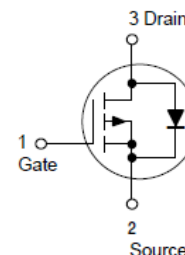


PRIMARY CHARACTERISTICS

P_D	225mW
V_{DSS}	-50V
I_D	-130mA
$T_{J,Max}$	150°C

SOT-23 PACKAGE



FEATURES

- Energy Efficient
- Miniature SOT-23 Surface Mount Package Saves Board Space
- We declare that the material of product compliant with RoHS requirements and Halogen Free.

MECHANICAL DATA

- Case : Molded plastic, SOT-23
- Polarity : Shown above
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Epoxy : UL94-V0 rated flame retardant

MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DSS}	-50	V
Gate-to-Source Voltage – Continuous	V_{GS}	± 20	V
Drain Current			mA
– Continuous $T_A = 25^\circ\text{C}$	I_D	-130	
– Pulsed ($t_p \leq 10\mu\text{s}$)	I_{DM}	-520	

THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-5 Board (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction and Storage temperature	T_J, T_{stg}	$-55 \sim +150$	$^\circ\text{C}$
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	$^\circ\text{C}$

1. FR-5 = 1.0×0.75×0.062 in.

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = -250µA)	VBRDSS	-50	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = -25 V) (VGS = 0, VDS = -50 V) (VGS = 0, VDS = -50 V, TJ=125°C)	IDSS	-	-	-0.1 -15 -60	µA
Gate–Body Leakage Current, Forward (VGS = 20V)	IGSSF	-	-	100	nA
Gate–Body Leakage Current, Reverse (VGS = - 20V)	IGSSR	-	-	-100	nA

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = -250µA)	VGS(th)	-0.8	-	-2	V
Static Drain–Source On–State Resistance (VGS = -5.0 V, ID = -100 mA) (VGS = -10 V, ID = -100 mA)	RDS(on)	-	2 1.8	6 5	Ω
Transfer Admittance (VDS = -25 V, ID = -100 mA, f = 1.0 kHz)	yfs	50	-	-	mS

DYNAMIC CHARACTERISTICS

Input Capacitance (VDS = - 15V, VGS=0V, f=1MHz)	Ciss	-	38	-	pF
Output Capacitance (VDS = - 15V, VGS=0V, f=1MHz)	Coss	-	4.8	-	pF
Reverse Transfer Capacitance (VDS = - 15V, VGS=0V, f=1MHz)	Crss	-	2.7	-	pF
Total Gate Charge	(VDS=-25V, VGS=-10V, ID=-0.1A)	Qg	-	2.0	nC
Gate–Source Charge		Qgs	-	0.26	
Gate–Drain Charge		Qgd	-	0.91	

SWITCHING CHARACTERISTICS

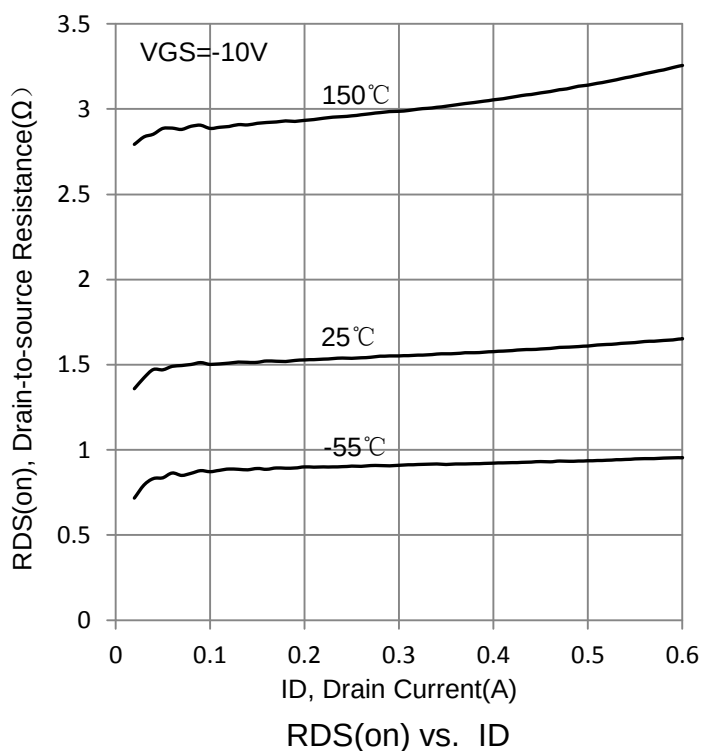
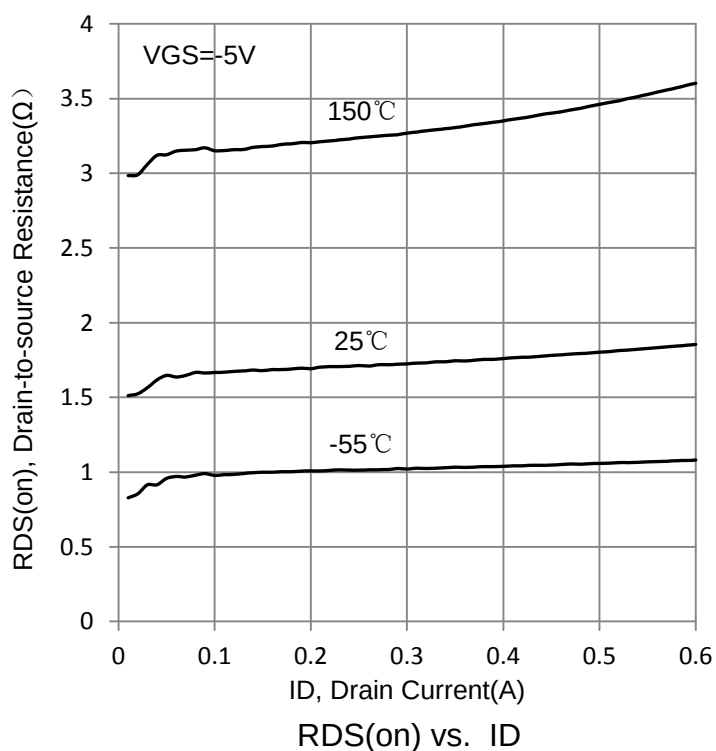
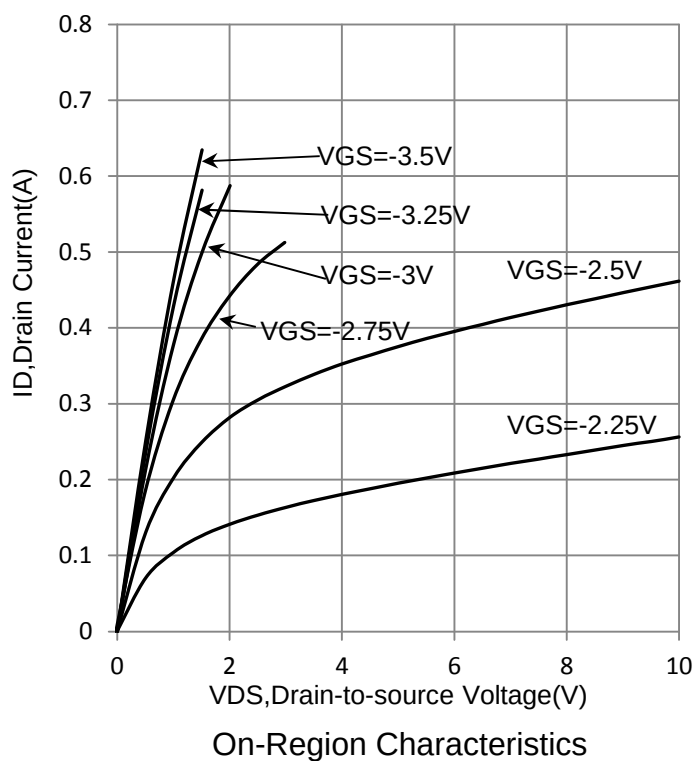
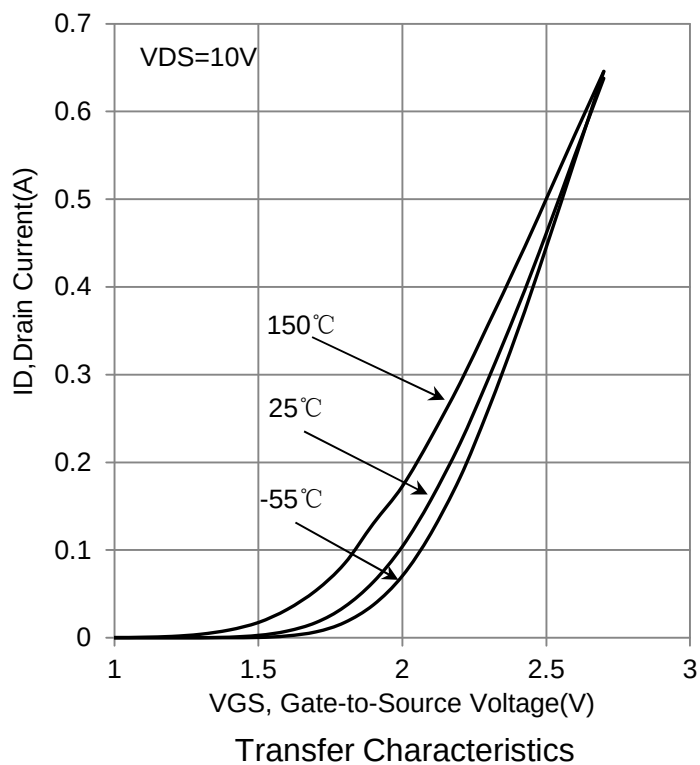
Turn-On Delay Time	(VDS = -15 V, VGS=-10V, RL = 50Ω, RG=25Ω)	td(on)	-	16.7	-	ns
Rise Time		tr	-	8.6	-	
Turn-Off Delay Time		td(off)	-	17.9	-	
Fall Time		tf	-	5.3	-	

SOURCE–DRAIN DIODE CHARACTERISTICS

Continuous Current	IS	-	-	-0.13	A
Pulsed Current	ISM	-	-	-0.52	A
Forward Voltage	VSD	-	-1.0	-	V

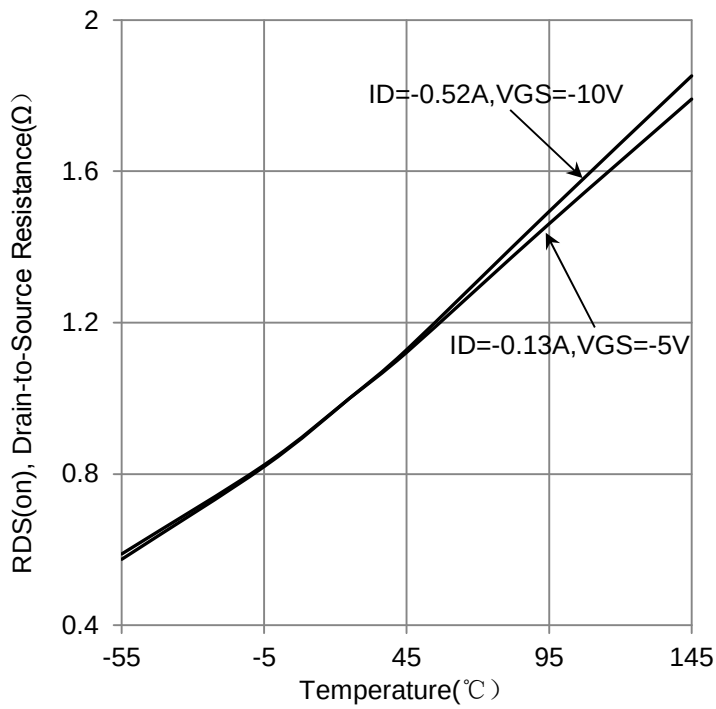
2.Pulse Test: Pulse Width ≤300 µs, Duty Cycle ≤2.0%.

ELECTRICAL CHARACTERISTICS CURVES

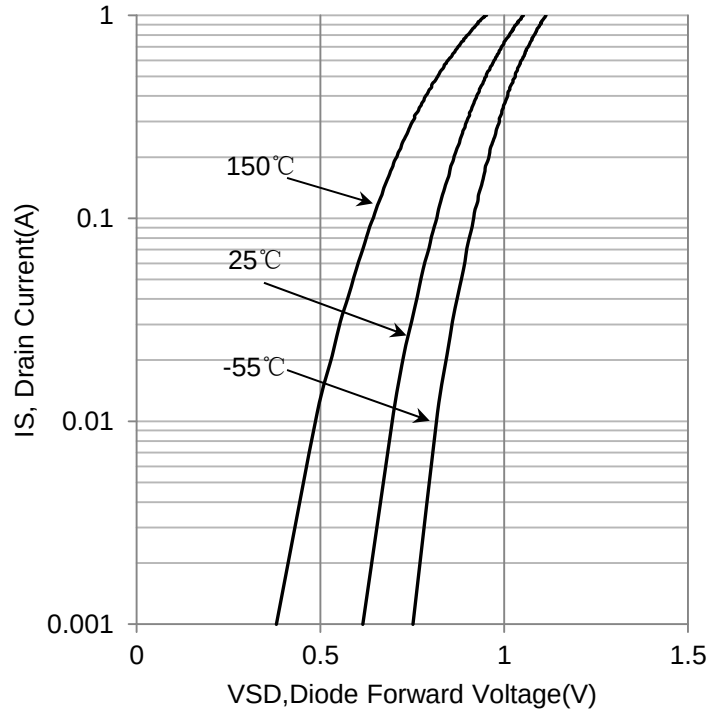




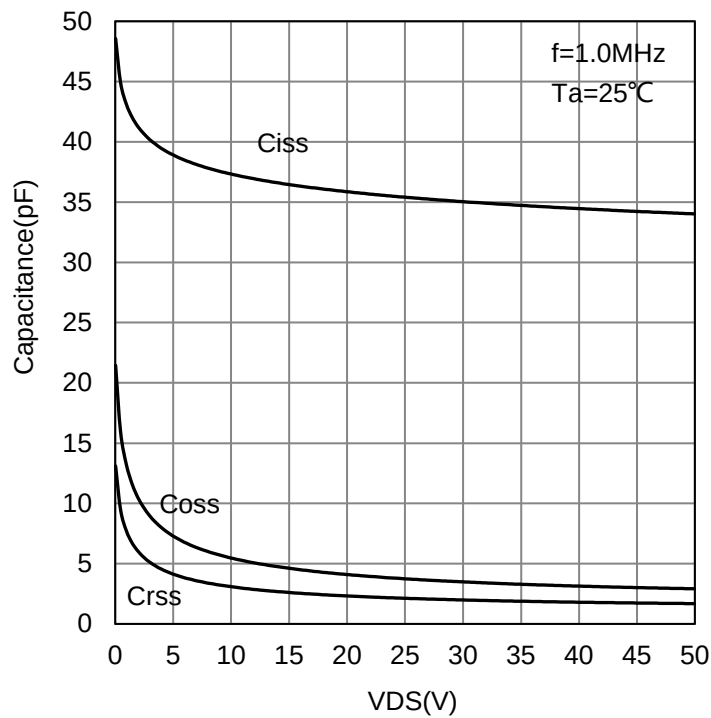
ELECTRICAL CHARACTERISTICS CURVES(Con.)



RDS(on) vs. Temperature



IS vs. VSD

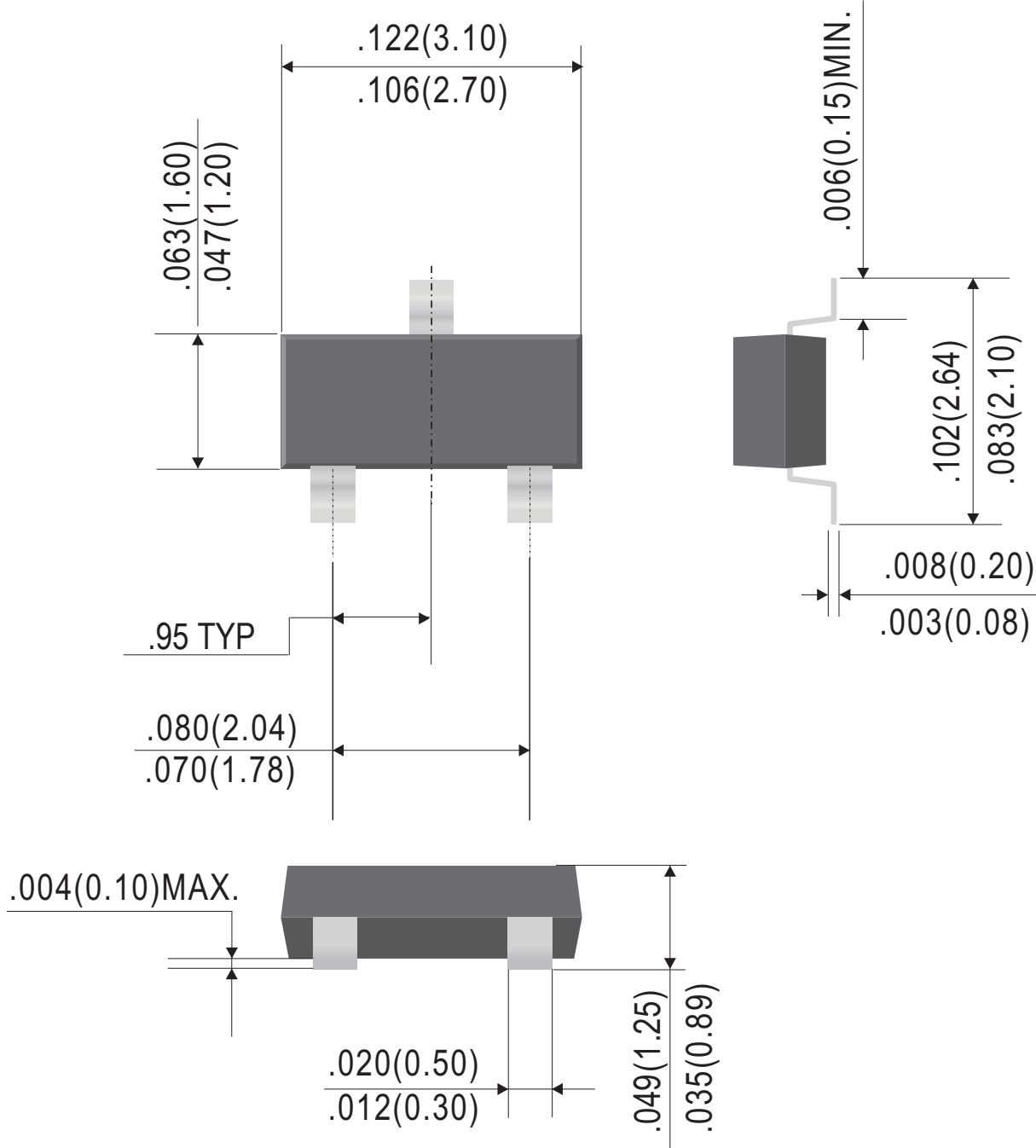


Capacitor vs. VDS



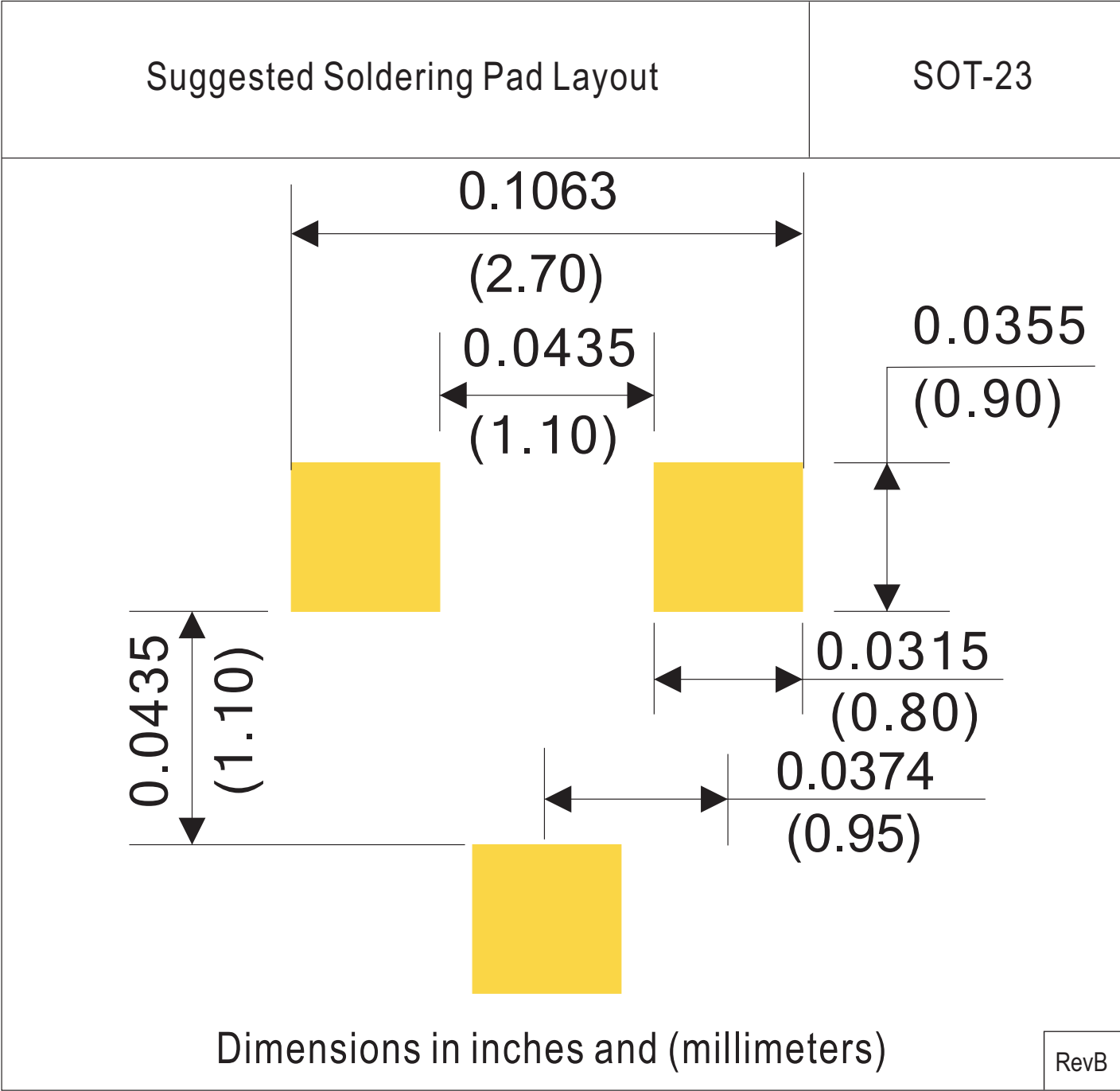
Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

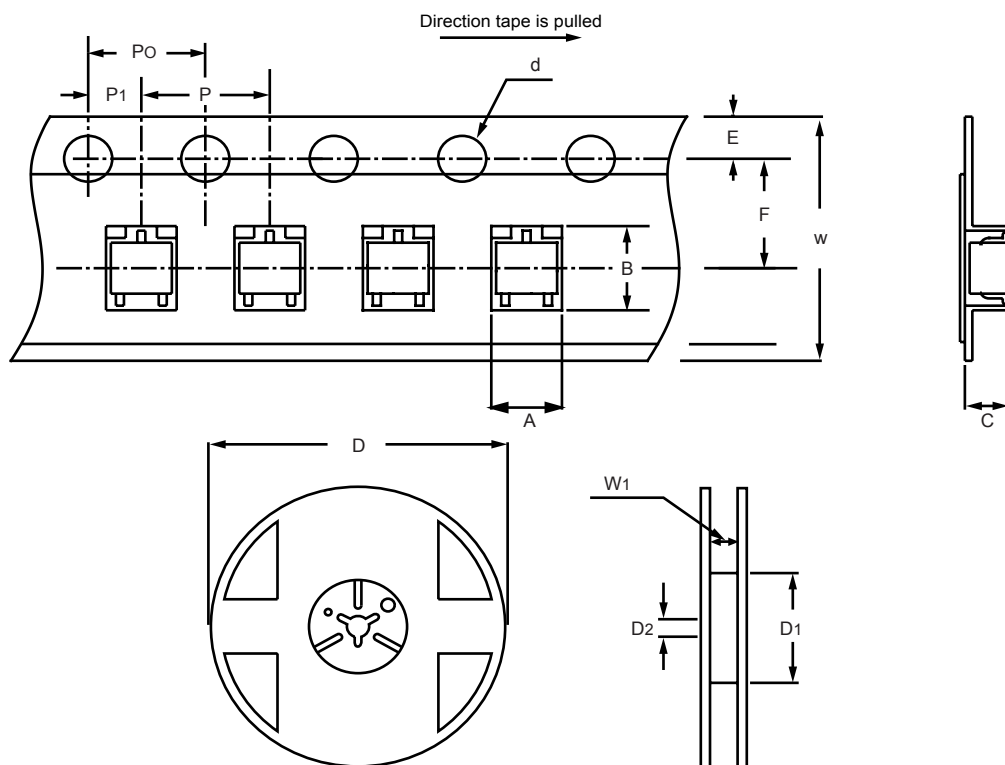
Rev.E



Reel Taping Sepecification - Surface Mount Device/SOT-23

Reel Packing

PACKAGE	PER REEL EA	REEL DIA (m/m)	BOX SIZE (m/m)	PER BOX EA	CARTION (m/m)	PER CARTION EA	GROSS WEIGHT (Kg)
SOT-23	3,000	178	192*195*136	30,000	440*410*410	360,000	15.0



ITEM	SYMBOL	SPECIFICATIONS (mm)	SPECIFICATIONS (inch)
Carrier width	A	3.1±0.1	0.122±0.004
Carrier length	B	2.85±0.1	0.112±0.004
Carrier depth	C	1.40±0.1	0.055±0.004
Sprocket hole	d	1.5 + 0.1/-0	0.059 + 0.004/-0
Reel outside diameter	D	180 + 0/-3	7.083 + 0/-0.118
Reel inner diameter	D1	60 + 1/-0	2.361 + 0.039/-0
Feed hole diameter	D2	13±0.2	0.512±0.008
Sprocket hole position	E	1.75±0.1	0.069±0.004
Punch hole position	F	3.5±0.05	0.138±0.002
Punch hole pitch	P	4.0±0.1	0.157±0.004
Sprocket hole pitch	P0	4.0±0.1	0.157±0.004
Embossment center	P1	2.0±0.05	0.079±0.002
Tape width	W	8.0±0.2	0.315±0.008
Reel width	W1	9.0±0.3	0.354±0.012

NOTE: 1.Devices are packed in accordance with EIAJ stand ETX-7001 and specifications listed above.

2.Available on 7 inch (3,000 c.t.) or 13 inch (10,000 c.t.) diameter reels.

Ordering Information:

Device PN	Marking ⁽⁴⁾	Packing
BSS4LT1 ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	PD	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Packing code Suffix"H" for halogen free product All materials and products supplied comply with the U.S. Toxic Substances Control Act statement, PBT Chemicals

(3) Willas brand abbreviation, Label Type does not display

(4) There may be additional marking, which relates to the lot trace code information (data code and vendor code), the logo or the environmental category on the device

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