

PRIMARY CHARACTERISTICS

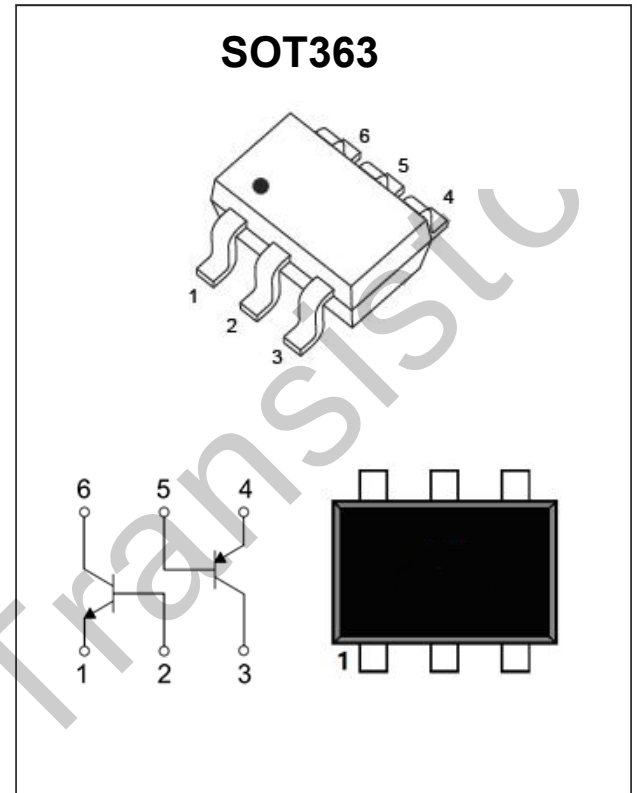
VCEO	IC	VCE(sat)	fT	Tjmax
40V/ -40V	200mA	0.30V/ -0.40V	300MHz/ 250MHz	150°C

Features

- Dual NPN and PNP Complementary Pair
- One 3904-Type NPN and One 3906-Type PNP
- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- RoHS Compliant and Halogen Free
- SOT-363 Surface Mount Package

Mechanical Data

- Package: SOT-363
- Mounting Style: Surface Mount
- Terminals: 6, Gull Wing
- Package Outline: JEDEC MO-203 Variation AB


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

Parameters	Symbols	Limits	Units
Collector-Base Voltage	VCBO	60/-40	V
Collector-Emitter Voltage	VCEO	40/-40	V
Emitter -Base Voltage	VEBO	5	V
Collector Current-Continuous	IC	200	mA
Collector Power Dissipation	PC	200	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

NPN Electrical Characteristics(Ta=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V(BR)CBO	IC=10μA, IE=0	60	-	-	V
Collector-emitter breakdown voltage	V(BR)CEO	IC=1mA, IB=0	40	-	-	V
Emitter-base breakdown voltage	V(BR)EBO	IE=10μA, IC=0	5	-	-	V
Collector cut-off current	ICBO	VCE=30V, IE=0	-	-	50	nA
Collector cut-off current	ICEO	VCE=30V, IB=0	-	-	500	nA
Emitter cut-off current	IEBO	VEB=5V, IC=0	-	-	50	nA
DC current gain	hFE(1)	VCE=1V, IC=0.1mA	40	-	-	
	hFE(2)	VCE=1V, IC=1mA	70	-	-	
	hFE(3)	VCE=1V, IC=10mA	100	-	300	
	hFE(4)	VCE=1V, IC=50mA	60	-	-	
Collector-emitter saturation voltage	VCE(sat)	IC=10mA, IB=1mA	-	-	0.2	V
		IC=50mA, IB=5mA	-	-	0.3	V
		-	-	-	-	V
Base-emitter saturation voltage	VBE(sat)	IC=10mA, IB=1mA	0.65	-	0.85	V
		IC=50mA, IB=5mA	-	-	0.95	V
Transition frequency	fT	VCE=20V, IC=20mA, f=100MHz	-	300	-	MHz
Collector output capacitance	Cob	VCE=5V, IE=0, f=1MHz	-	4	-	pF
Noise Figure	NF	VCE=5V, IC=0.1mA, f=1kHz, Rg=1kΩ	-	5	-	dB
Delay time	td	VCC=3V, VBE=0.5V, IC=10mA, IB1=-IB2=1mA	-	35	-	ns
Rise time	tr		-	35	-	ns
Storage time	ts		-	200	-	ns
Fall time	tf		-	50	-	ns

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

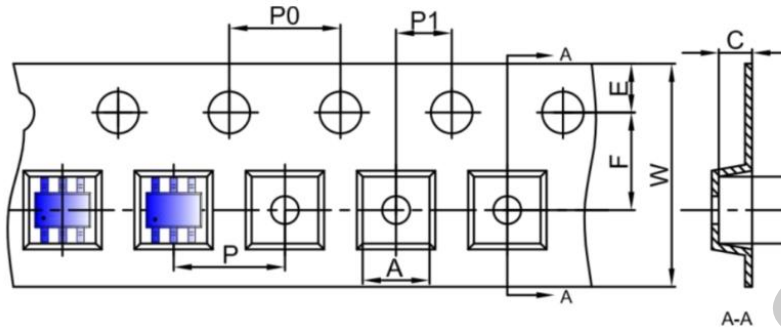
Parameters	Symbols	Limits	Units
Collector-Base Voltage	VCBO	-40	V
Collector-Emitter Voltage	VCEO	-40	V
Emitter -Base Voltage	VEBO	-5	V
Collector Current-Continuous	IC	-200	mA
Collector Power Dissipation	PC	200	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

PNP Electrical Characteristics(Ta=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V(BR)CBO	IC=-10μA, IE=0	-40	-	-	V
Collector-emitter breakdown voltage	V(BR)CEO	IC=-1mA, IB=0	-40	-	-	V
Emitter-base breakdown voltage	V(BR)EBO	IE=-10μA, IC=0	-5	-	-	V
Collector cut-off current	ICBO	VCB=-30V, IE=0	-	-	-50	nA
Collector cut-off current	ICEO	-	-	-	-	nA
Emitter cut-off current	IEBO	VEB=-5V, IC=0	-	-	-50	nA
DC current gain	hFE(1)	VCE=-1V, IC=-0.1mA	60	-	-	
	hFE(2)	VCE=-1V, IC=-1mA	80	-	-	
	hFE(3)	VCE=-1V, IC=-10mA	100	-	300	
	hFE(4)	VCE=-1V, IC=-50mA	60	-	-	
Collector-emitter saturation voltage	VCE(sat)	IC=-10mA, IB=-1mA	-	-	-0.25	V
		IC=-50mA, IB=-5mA	-	-	-0.4	V
		-	-	-	-	V
Base-emitter saturation voltage	VBE(sat)	IC=-10mA, IB=-1mA	-0.6	-	-0.85	V
		IC=-50mA, IB=-5mA	-	-	-0.95	V
		-	-	-	-	V
Base-emitter voltage	VBE	-	-	-	-	V
Transition frequency	fT	VCE=-20V, IC=-10mA, f=100MHz	-	250	-	MHz
Collector output capacitance	Cob	VCB=-5V, IE=0, f=1MHz	-	4.5	-	pF
Noise Figure	NF	VCE=-5V, IC=-0.1mA, f=1kHz, Rg=1kΩ	-	4	-	dB
Delay time	td	VCC=-3V, VBE=-0.5V, IC=-10mA, IB1=-IB2=-1mA	-	35	-	ns
Rise time	tr		-	35	-	ns
Storage time	ts	VCC=-3V, IC=-10mA, IB1=-IB2=-1mA	-	225	-	ns
Fall time	tf		-	75	-	ns

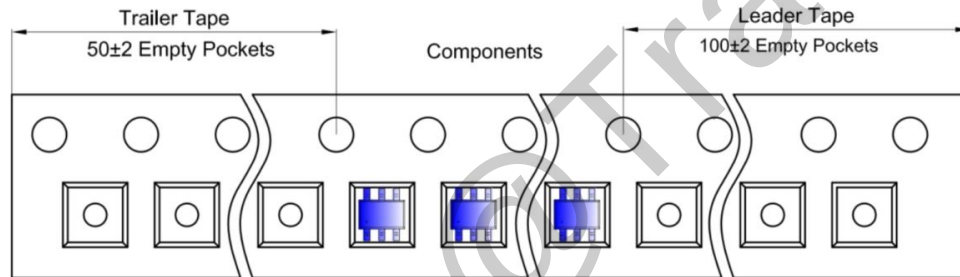
Package Information

Carrier Dimension(mm)

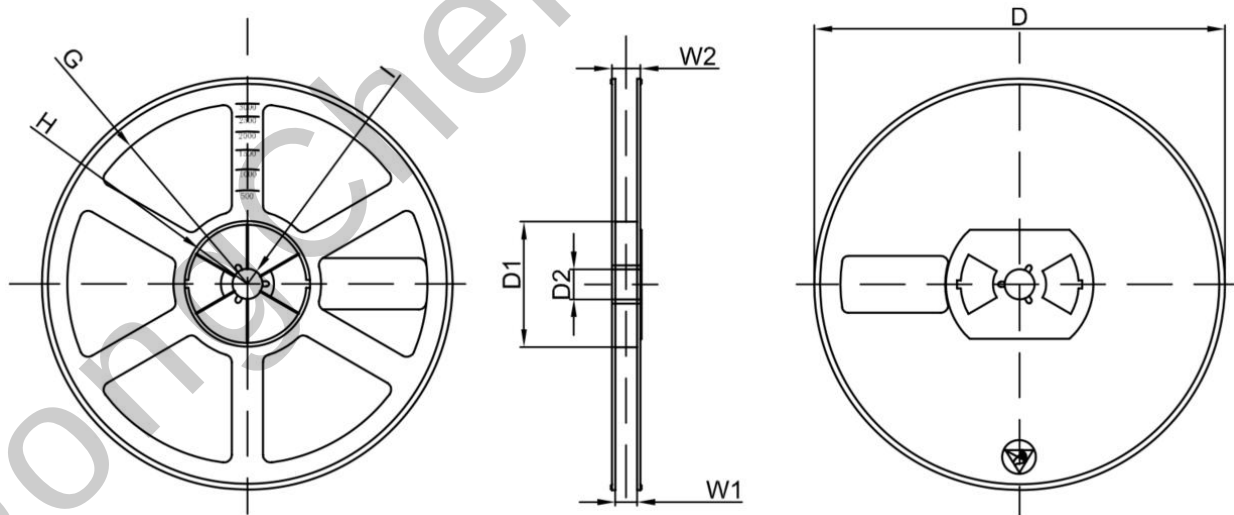


Dimensions are in millimeter

Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00



Reel Dimension(mm)



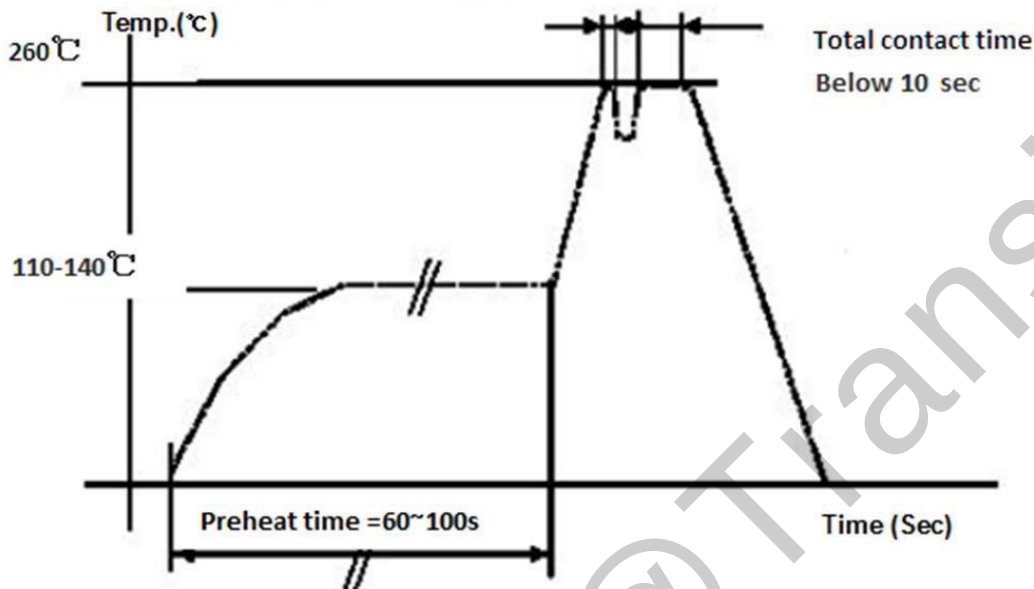
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

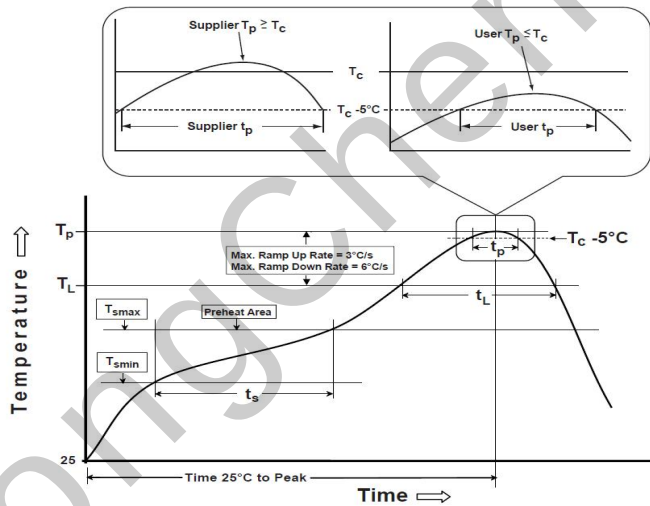
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT363	7'	178	3	210*208*203	45	440*400*230	180

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



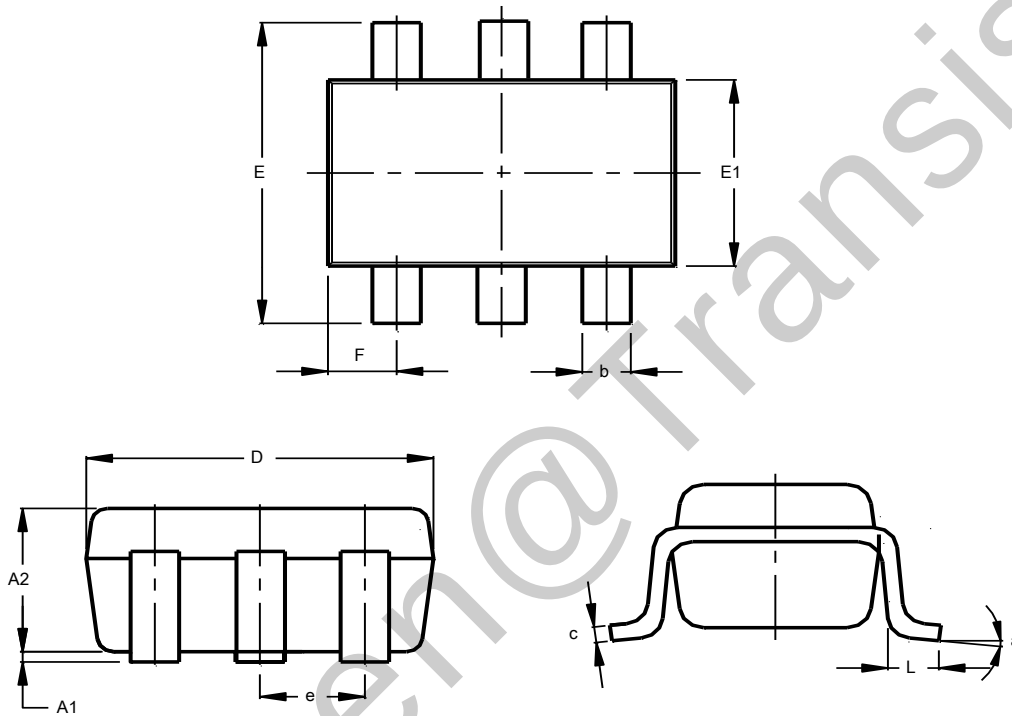
Preheat/Soak Temperature Min (T _{smin}) Temperature Max (T _{smax}) Time (ts) from (T _{smin} to T _{smax})	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C(Melting Point of Solder)	3°C/sec
Time at Temp.>217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	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.

Outline Drawing

SOT-363

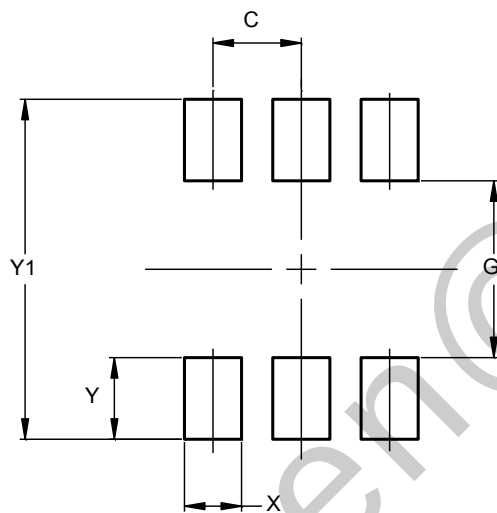


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Dimensions in inches and (millimeters)

Suggested Soldering Pad Layout

SOT-363



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

Dimensions in inches and (millimeters)

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