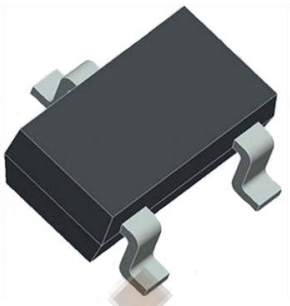
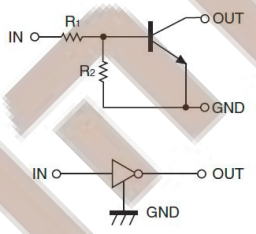
Features

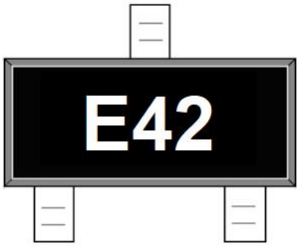
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation,marking Device design easy
- Moisture Sensitivity Level 3





Mechanical Data

- SOT-523 Package
- Epoxy UL:94V-0
- Mounting Position:Any
- R1=2.2KΩ，R2=46.2KΩ



Package Marking and Ordering Information

Product ID	Package	Marking	Qty(PCS)
DTC123JE	SOT-523	E42	3000

Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

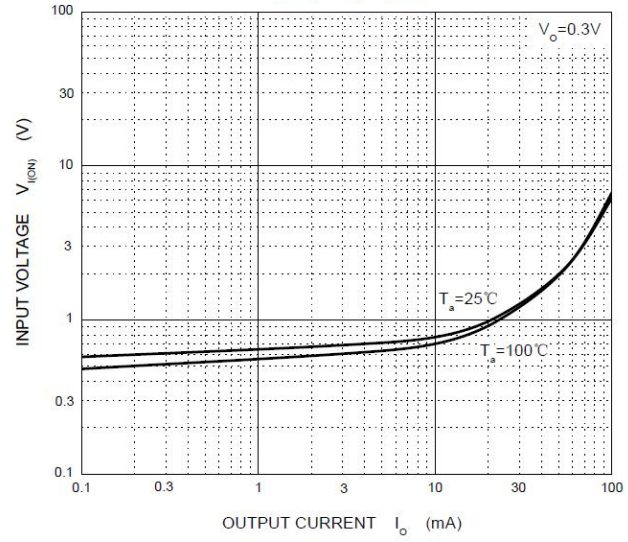
Parameters	Symbols	Limits	Units
Supply Voltage	VCC	50	V
Input Voltage	VIN	-6~+40	V
Output Current	IO	70	mA
Peak Collector Current	ICM	100	mA
Power Dissipation	PC	150	mW
Junction Temperature	Tj	-55-+150	℃
Storage Temperature	Tstg	-55-+150	℃

Electrical Characteristics(Ta=25℃ unless otherwise noted)

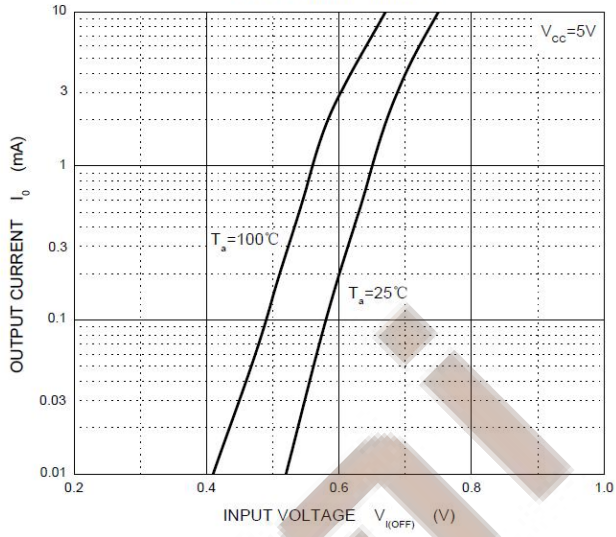
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input on voltage	VI(ON)	VO=0.3V, IO=5mA			1.1	V
Input off voltage	VI(OFF)	VCC=5V, IO=0.1mA	0.5			V
Output voltage	VO(on)	IO/II=5mA/0.25mA		0.1	0.3	V
Input current	II	VI=5V			3.6	mA
Output current	IO(off)	VCC=50V, VI=0			0.5	uA
DC current gain	GI	VO=5V, IO= 10mA	80			
Input resistor	R1	-	1.54	2.2	2.86	kΩ
Resistor ratio	R2/R1	-	17	21	26	
Transition frequency	fT	VO= 10V, IO=5mA, f=100MHz		250		MHz

Typical characteristics

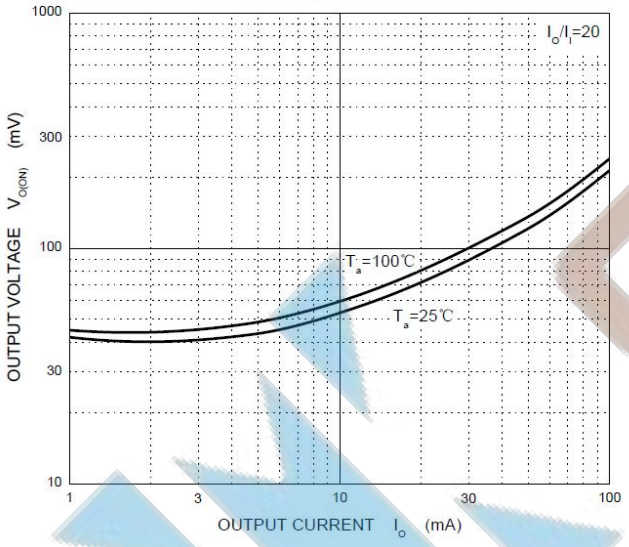
ON Characteristics



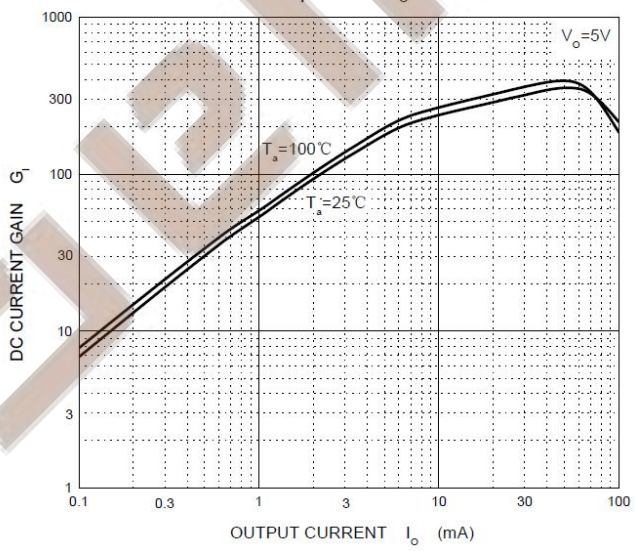
OFF Characteristics



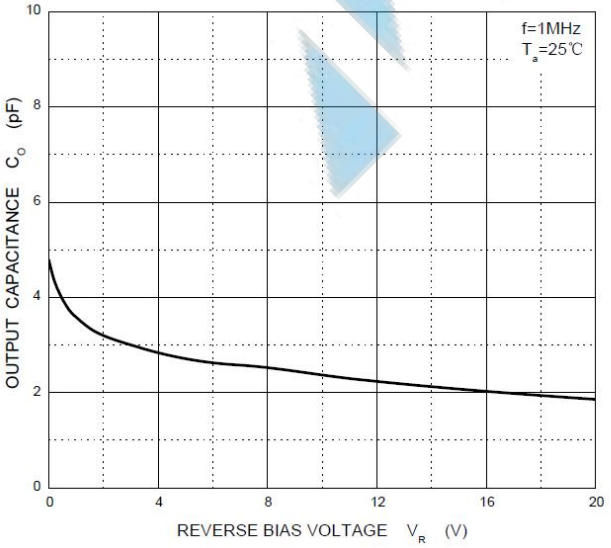
$V_{O(ON)}$ — I_O



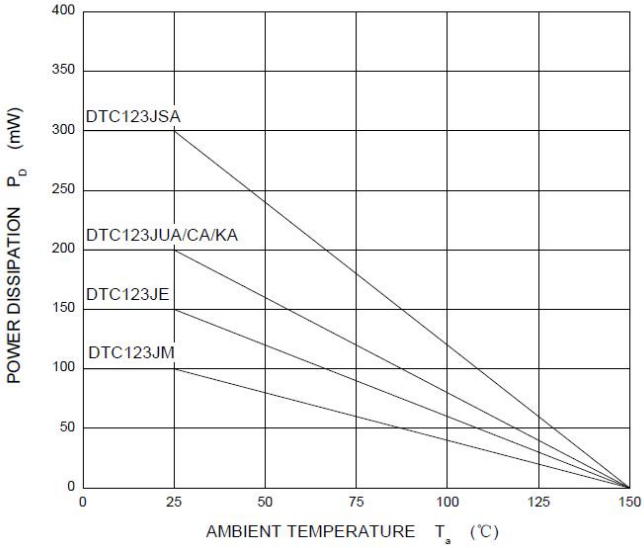
G_I — I_O



C_O — V_R

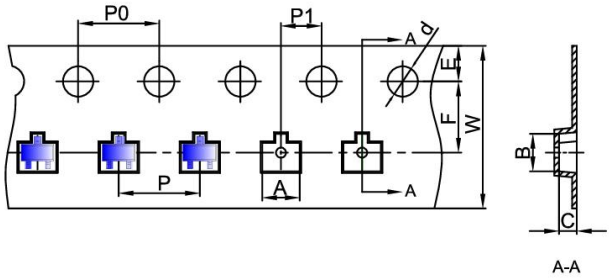


P_D — T_a

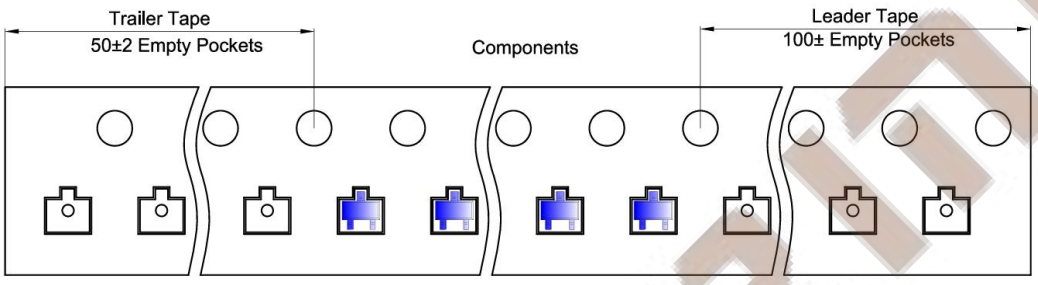


Package Information

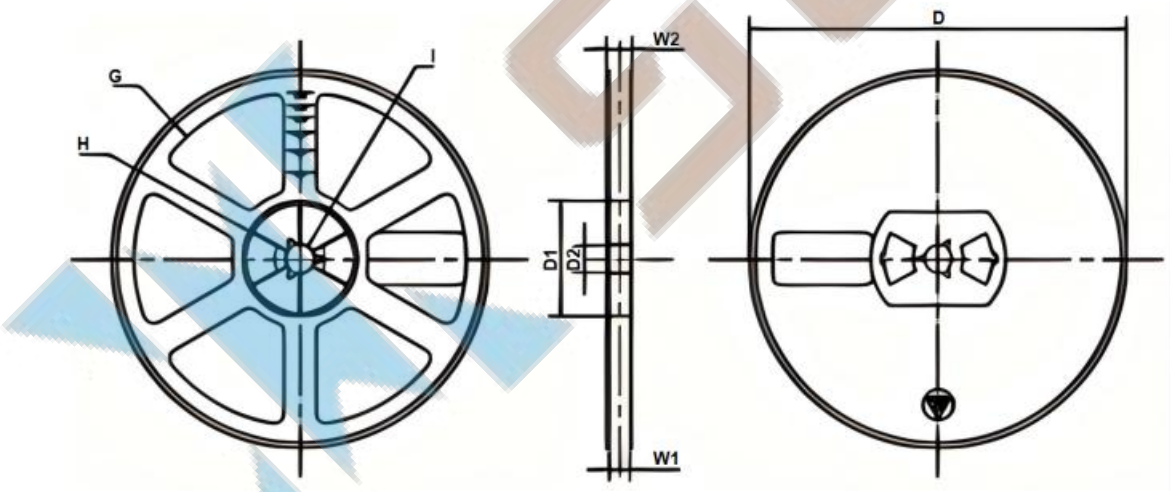
Carrier Dimension(mm)



Dimensions are in millimeter										
Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOT-523	1.85	1.85	0.875	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00



Reel Dimension(mm)



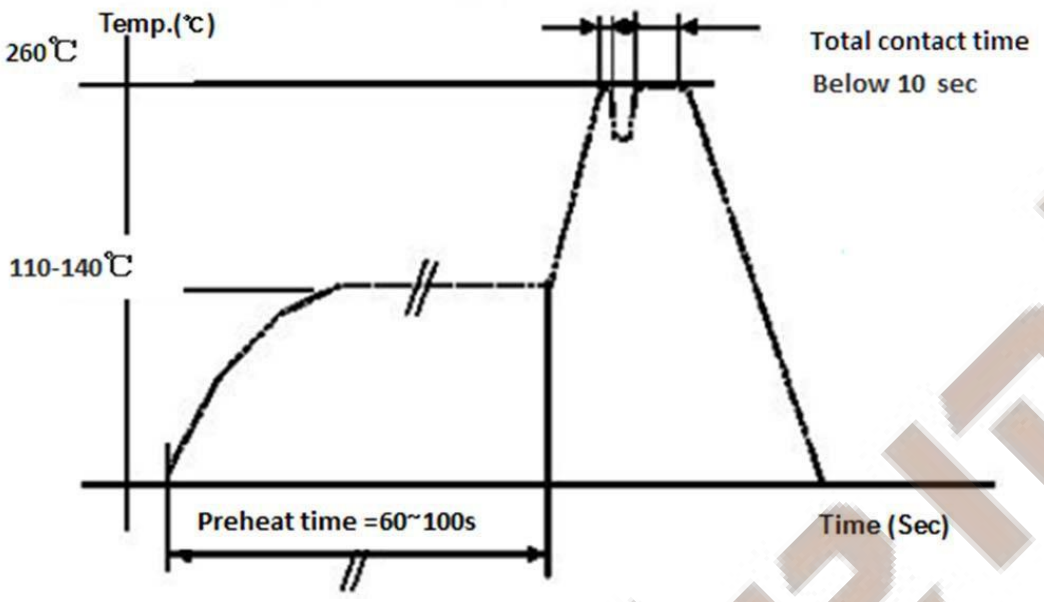
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

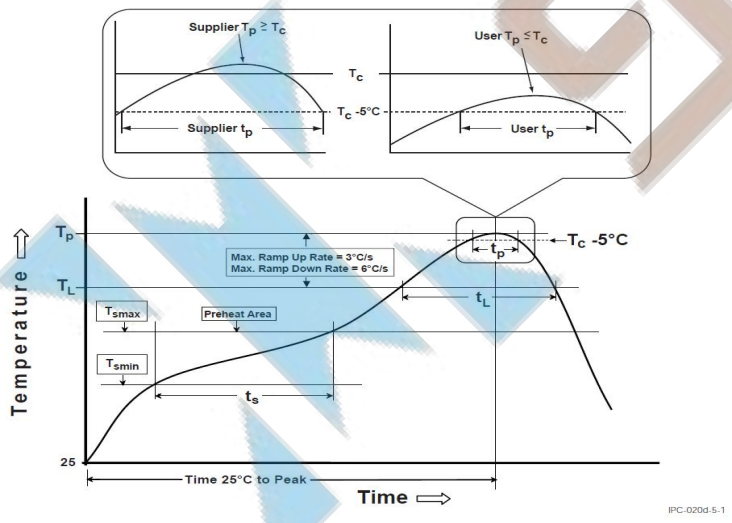
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT523	7'	178	3	210*208*203	45	440*400*230	180

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

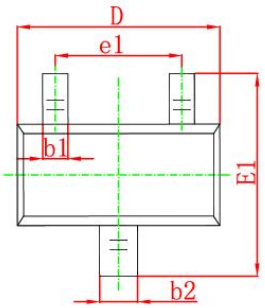


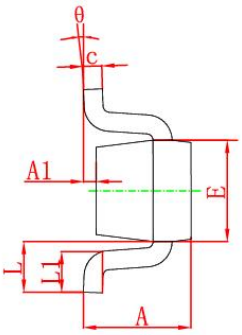
Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217℃
Ramp-up Rate to 217℃(Melting Point of Solder)	3℃/sec
Time at Temp.>217℃ (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5℃
Time within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

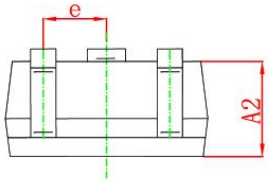
c) Manual Soldering

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

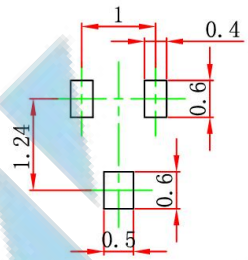






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

Disclaimer

The information presented in this document is for reference only. Yancheng **Xirun Semiconductor Co., Ltd** reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electron ic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), **Xirun Semiconductor** or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.x-semi.cn , or consult your nearest **Xirun Semiconductor's** sales office for further assistance.