

DTC113ZCA
NPN TRANSISTOR



VOLTAGE: 50 Volts

CURRENT: 0.1 Amperes

SOT-23

Marking and Polarity

FEATURES

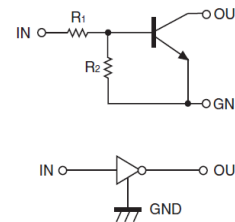
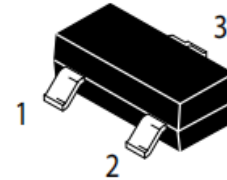
- Collector current: $I_O=0.1A$.

MECHANICAL DATA

- Package: SOT-23
- Epoxy UL: 94V-0
- Mounting position: Any
- Weight: approx. 0.01g

DEVICE MARKING

Device	Marking
DTC113ZCA	E21



Maximum Ratings (Ratings at 25 °C ambient temperature unless otherwise specified.)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-5~+50	V
Output Dissipation	I_o	0.1	A
Collector Power Dissipation	P_C	200	mW

Thermal Characteristics (Ratings at 25 °C ambient temperature unless otherwise specified.)

Parameter	Symbol	Value	Unit
Junction Temperature	T_J	-55 to 150	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C



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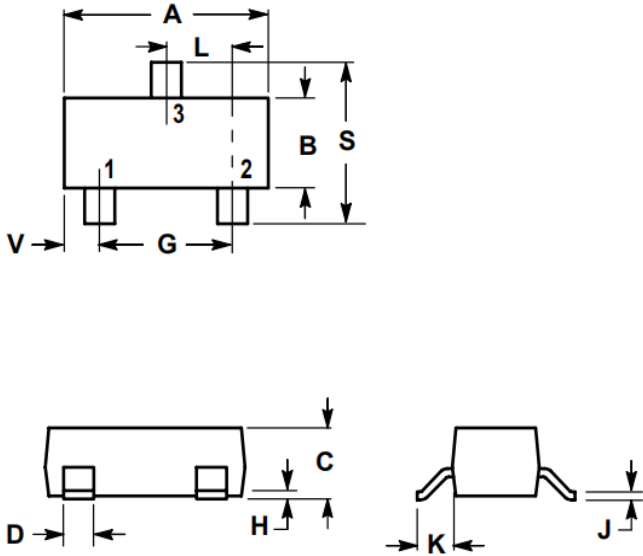
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Input Voltage	$V_{CC}=5V, I_O=100\mu A$	$V_{I(OFF)}$	0.3	-	-	V
	$V_O=0.3V, I_O=20mA$	$V_{I(ON)}$	-	-	3	V
Output current	$I_O/I_I=10mA/0.5mA$	$V_{O(ON)}$	-	-	0.3	V
Input Current	$V_I=5V$	I_I	-	-	7.2	mA
Output current	$V_{CC}=50V, V_I=0$	$I_{O(OFF)}$	-	-	0.5	μA
DC Current Gain	$V_O=5V, I_O=5mA$	G_I	33	-	-	
Input resistance		$R1$	0.7	1	1.3	K Ω
Resistance ratio		$R2/R1$	8	10	12	
Transition Frequency	$V_O=10V, I_O=5mA$ $f=100MHz$	F_T	-	250	-	MHz

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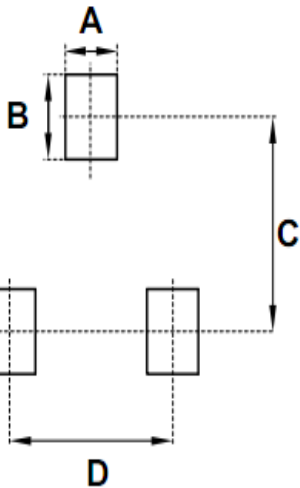
OUTLINE DRAWINGS



SOT-23

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.800	-	3.040	0.1102	-	0.1197
B	1.200	-	1.400	0.0472	-	0.0551
C	0.890	-	1.110	0.0350	-	0.0437
D	0.370	-	0.500	0.0146	-	0.0197
G	1.780	-	2.040	0.0701	-	0.0803
H	0.013	-	0.100	0.0005	-	0.0039
J	0.085	-	0.177	0.0033	-	0.0070
K	0.350	-	0.690	0.0138	-	0.0272
L	0.890	-	1.020	0.0350	-	0.0402
S	2.100	-	2.640	0.0827	-	0.1039
V	0.450	-	0.600	0.0177	-	0.0236

MOUNTING PAD LAYOUT



SOT-23

RECOMMENDED MOUNTING PAD DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	0.600	-	-	0.0236	-
B	-	0.800	-	-	0.0315	-
C	-	2.020	-	-	0.0795	-
D	-	1.900	-	-	0.0748	-

PACKING INFORMATION

SOT-23

Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size LxWxH(mm)	Quantity (pcs/Inner Box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)
Tape Reel	Φ180	3000	340x340x40	6000	364x364x360	160000

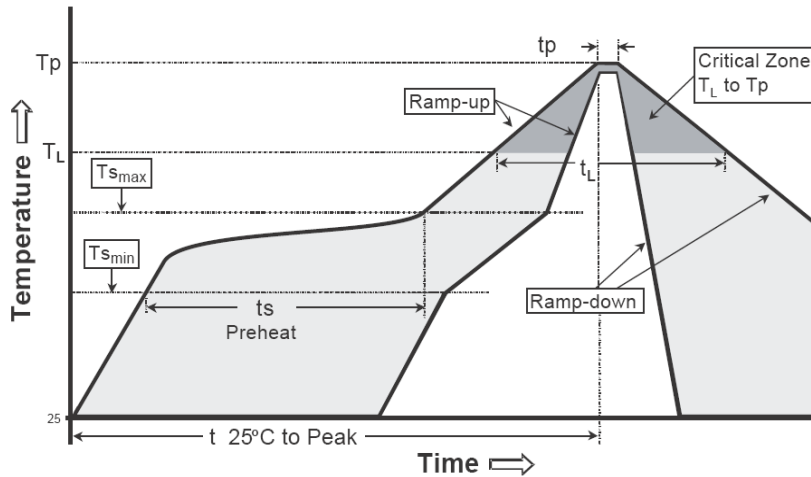
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T _p)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(t _p)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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