

FrelTec

Mathildenstr. 10A
82319 Starnberg
Germany

Transistor Diode
SOT523

SOT523

SPECIFICATION

671	DTC1xxxExx	ST53	E03
Type	Type	Package	Packing
671: Transistor Diode	DTC1xxxE	SOT523	E03: Embossed tape and reel for 3k pc (7'REEL)

All products according to RoHS (2015/863/EU)

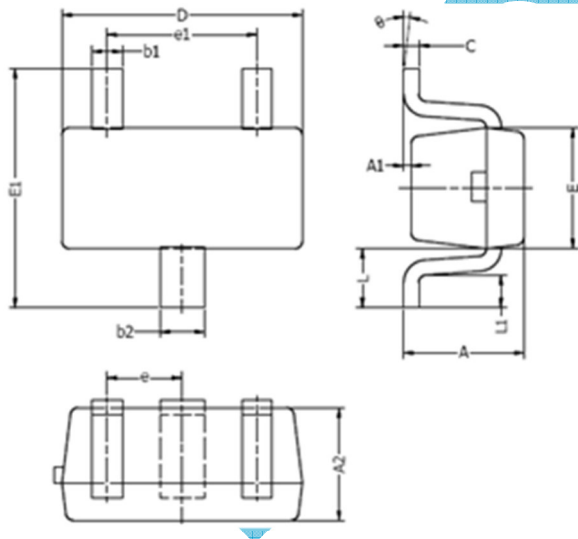
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Transistor Diode

DTC1xxxE

PACKAGE OUTLINE



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°

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Absolute Maximum Ratings TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	-50	V
V _{CEO}	Collector-Emitter Voltage	50	V
I _c	Collector Current	100	mA
P _D	Power Dissipation	150	mW
R _{θJA}	Typical thermal resistance	600	°C/W
T _J T _{STG}	Junction & Storage Temperature Range	-55 to +150	°C

These ratings are limiting values above which the serviceability of the device may be impaired

Device Marking & Resistor Values:

Device	Marking	R1(KΩ)	R2(KΩ)
DTC114EE	24	10	10
DTC124EE	25	22	22
DTC144EE	26	47	47
DTC114YE	64	10	47
DTC114TE	04	10	∞
DTC143TE	03	4,7	∞
DTC123EE	22	2,2	2,2
DTC143EE	23	4,7	4,7
DTC143ZE	E23	4,7	47
DTC124XE	45	22	47
DTC123JE	E42	2,2	47

Electrical Characteristics (TA = 25°C unless otherwise noted)

Off Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Type	Max	
ICBO	Collector-Base Cutoff Current	V _{CB} =-50V, I _E =0A	-	-	100	nA
ICEO	Collector-Emitter Cutoff Current	V _{CE} =-50V, I _B =0A	-	-	500	nA
IEBO	Emitter-Base Cutoff Current	V _{EB} =6,0V, I _C =0A				

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		DTC114EE	-	-	0,50		
		DTC124EE	-	-	0,20		
		DTC144EE	-	-	0,10		
		DTC114YE	-	-	0,20		
		DTC114TE	-	-	0,90	mA	
		DTC143TE	-	-	1,90		
		DTC123EE	-	-	2,30		
		DTC143EE	-	-	1,50		
		DTC143ZE	-	-	0,18		
		DTC124XE	-	-	0,13		
		DTC123JE	-	-	0,20		
V(BR)CBO	Collector-Base Voltage	Breakdown	$I_C=10\mu A, I_E=0A$	50	-	-	Volts
V(BR)CEO	Collector-Emitter Voltage(Note 1)	Breakdown	$I_C=-2,0mA, I_B=0A$	50	-	-	Volts

Note 1: Pulse Test. Pulse width < 300us, Duty cycle < 2,0%)

On Characteristics (Note 1)

Symbol	Parameter	Test Condition	Limits			Unit	
			Min	Type	Max		
H _{FE}	DC Current Gain	V _{CC} =10V, I _C =5,0mA					
			DTC114EE	35	60	-	
			DTC124EE	60	100	-	
			DTC144EE	80	140	-	
			DTC114YE	80	140	-	
			DTC114TE	160	350	-	
			DTC143TE	60	350	-	
			DTC123EE	8,0	15	-	

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		DTC143EE	15	30	-	
		DTC143ZE	80	200	-	
		DTC124XE	80	150	-	
		DTC123JE	80	140	-	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage					
		DTC114EE $I_C=10mA, I_B=0,3mA$				
		DTC124EE $I_C=10mA, I_B=0,3mA$				
		DTC144EE $I_C=10mA, I_B=0,3mA$				
		DTC114YE $I_C=10mA, I_B=0,3mA$				
		DTC114TE $I_C=10mA, I_B=1mA$				
		DTC143TE $I_C=10mA, I_B=1mA$	--	--	0,25	Volts
		DTC123EE $I_C=10mA, I_B=5mA$				
		DTC143EE $I_C=10mA, I_B=1mA$				
		DTC143ZE $I_C=10mA, I_B=1mA$				
		DTC124XE $I_C=10mA, I_B=1mA$				
		DTC123JE $I_C=10mA, I_B=0,3mA$				
V_{OL}	Output Voltage(on)	$R_L=1,0 K\Omega$				
		DTC114EE $V_{CC}=5,0V, V_B=2,5V$				
		DTC124EE $V_{CC}=5,0V, V_B=2,5V$				
		DTC144EE $V_{CC}=5,0V, V_B=3,5V$				
		DTC114YE $V_{CC}=5,0V, V_B=2,5V$	--	--	0,20	Volts
		DTC114TE $V_{CC}=5,0V, V_B=2,5V$				
		DTC143TE $V_{CC}=5,0V, V_B=2,5V$				
		DTC123EE $V_{CC}=5,0V, V_B=2,5V$				

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		DTC143EE $V_{CC}=5,0V, V_B=2,5V$				
		DTC143ZE $V_{CC}=5,0V, V_B=2,5V$				
		DTC124XE $V_{CC}=5,0V, V_B=2,5V$				
		DTC123JE $V_{CC}=5,0V, V_B=2,5V$				
V_{OH}	Output Voltage(on)	$R_L=1,0\text{ K}\Omega$				
		DTC114EE $V_{CC}=5,0V, V_B=0,5V$				
		DTC124EE $V_{CC}=5,0V, V_B=0,5V$				
		DTC144EE $V_{CC}=5,0V, V_B=0,5V$				
		DTC114YE $V_{CC}=5,0V, V_B=0,5V$				
		DTC114TE $V_{CC}=5,0V, V_B=0,25V$				
		DTC143TE $V_{CC}=5,0V, V_B=0,25V$	4,9	--	--	Volts
		DTC123EE $V_{CC}=5,0V, V_B=0,5V$				
		DTC143EE $V_{CC}=5,0V, V_B=0,5V$				
		DTC143ZE $V_{CC}=5,0V, V_B=0,25V$				
		DTC124XE $V_{CC}=5,0V, V_B=0,5V$				
		DTC123JE $V_{CC}=5,0V, V_B=0,5V$				

Electrical Characteristics (TA = 25°C unless otherwise noted)

Symbol	Parameter		Limits			Unit
			Min	Type	Max	
R1	Input Resistor	DTC114EE	7,0	10	13	KΩ
		DTC124EE	15,4	22	28,6	
		DTC144EE	32,9	47	61,1	
		DTC114YE	7,0	10	13	
		DTC114TE	7,0	10	13	
		DTC143TE	3,3	4,7	6,1	

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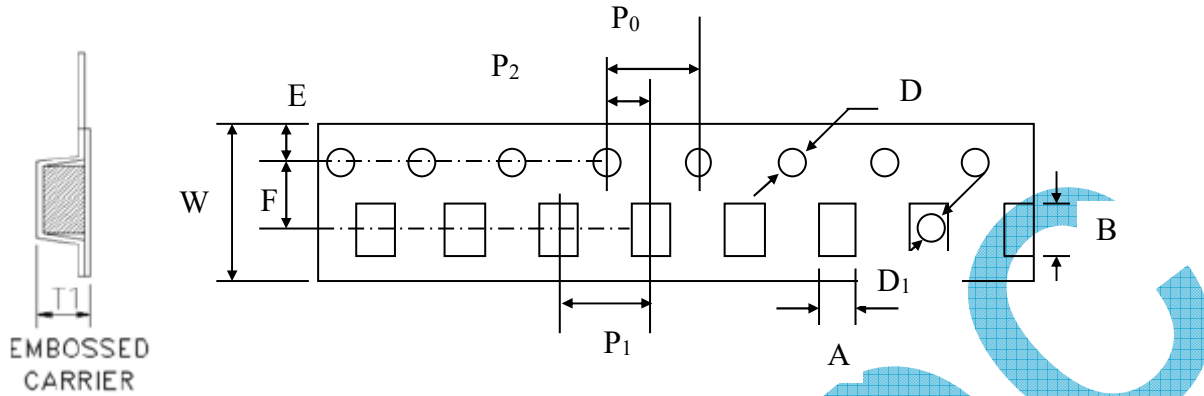
		DTC123EE	1,5	2,2	2,9	
		DTC143EE	3,3	4,7	6,1	
		DTC143ZE	3,3	4,7	6,1	
		DTC124XE	15,4	22	28,6	
		DTC123JE	1,54	2,2	2,86	
R1/R2	Resistor Ratio	DTC114EE	0,8	1,0	1,2	
		DTC124EE	0,8	1,0	1,2	
		DTC144EE	0,8	1,0	1,2	
		DTC114YE	0,17	0,21	0,25	
		DTC114TE	-	-	-	
		DTC143TE	-	-	-	--
		DTC123EE	0,8	1,0	1,2	
		DTC143EE	0,8	1,0	1,2	
		DTC143ZE	0,055	0,1	0,185	
		DTC124XE	0,38	0,47	0,56	
		DTC123JE	0,038	0,047	0,056	

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SPECIFICATION

Tape And Reel Package



Type	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD	ΦD ₁	T1
	1,73 ±0,1	1,85 ±0,1	8 ±0,30	1,75±0,01	3,5 ±0,05	4,00±0,10	4,00±0,10	2,00±0,05	1,55±0,03	0,4 ±0,5	1 ±0,1

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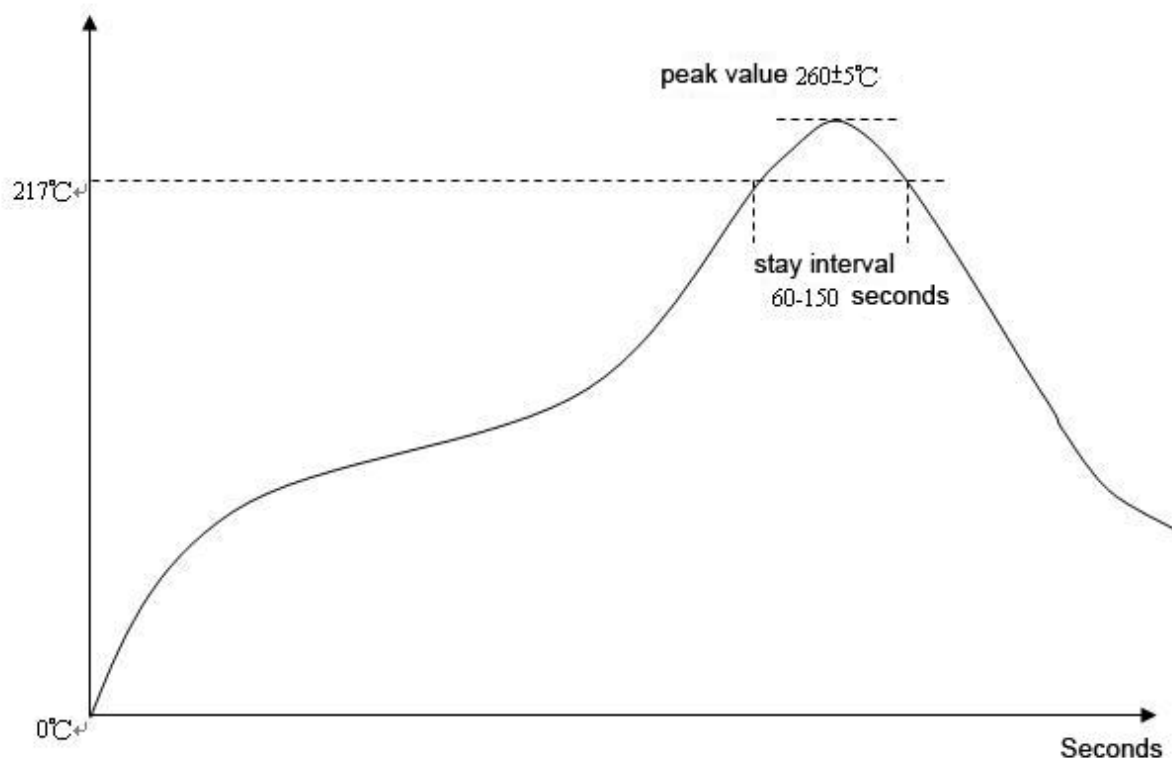
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Lead Free Reflow Soldering Profile

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Stock period

The performance of these products, including the solderability, is guaranteed for 12 month, provided that they remain packed as they were when delivered and stored at a temperature of $25^\circ\text{C} \pm 3^\circ\text{C}$ and a relative humidity less than 80%RH

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