DTC143EM

NPN TRANSISTOR

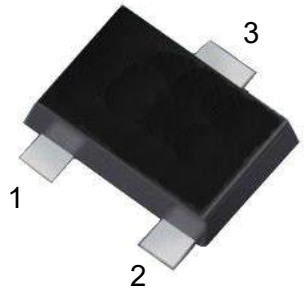
Features

- Low profile package
- Ideal for automated placement
- Complementary to DTA143EM(PNP).
- Power Dissipation of 150mW
- High Stability and High Reliability
- RoHS Compliant

Mechanical Data

- Package: SOT-723
- Lead Finish:Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Tape Reel :8000pcs

Appearance & Symbol

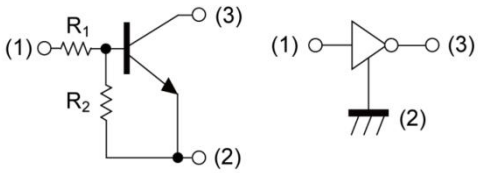


Package：SOT-723

1：Base
2：Emitter
3：Collector

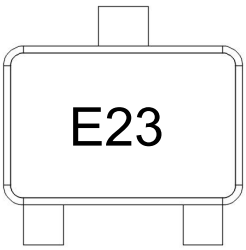
Applications

- Amplifying signal
- Electronic switch
- Oscillating circuit
- Variable resistance



(1) IN (BASE)
(2) GND (EMITTER)
(3) OUT (COLLECTOR)

Marking Information



E23= Marking Code

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

Parameter	Symbol	Value	Units
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-5 to +30	V
Output Current	I_O	100	mA
Peak Collector Current	I_{CM}	200	mA
Power Dissipation	P_D	150	mW
Junction Temperature Range	T_J	-55 to +150	℃
Storage Temperature Range	T_{stg}	-55 to +150	℃

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.5			V
	$V_{I(on)}$	V_O=0.3V,I_O=5 mA			1.3	V
Output voltage	$V_{O(on)}$	I_O/I_I=5mA/0.25mA		100	300	mV
Input current	I_I	V_I=5V			1.8	mA
Output current	$I_{O(off)}$	V_{CC}=50V,V_I=0V			500	nA
DC current gain	G_I	V_O=5V,I_O=10mA	80			
Input resistance	R_1		3.29	4.7	6.11	kΩ
Resistance ratio	R_2/R_1		8	10	12	
Transition frequency	f_T	V_O=10V,I_O=5mA,f=100MHz		250		MHz

Typical Characteristics

Fig.1 Input voltage vs. output current (ON characteristics)

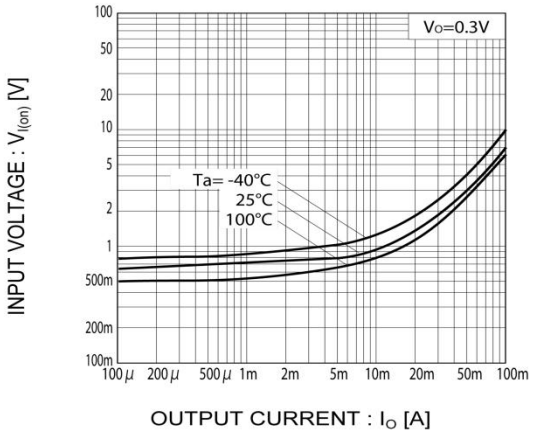


Fig.2 Output current vs. input voltage (OFF characteristics)

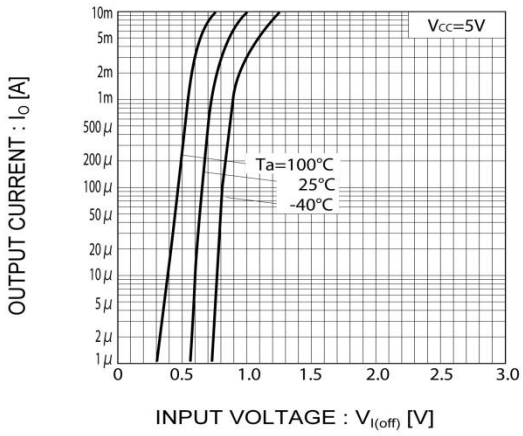


Fig.3 Output current vs. output voltage

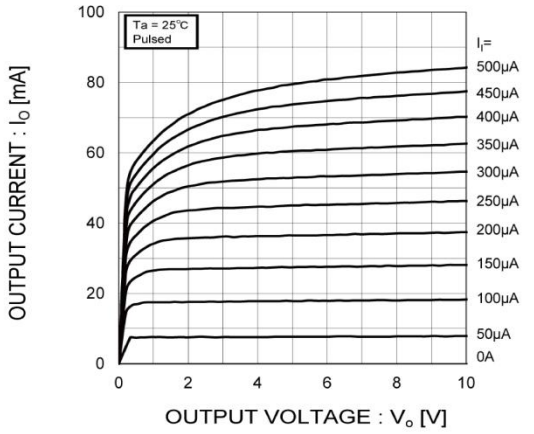


Fig.4 DC current gain vs. output current

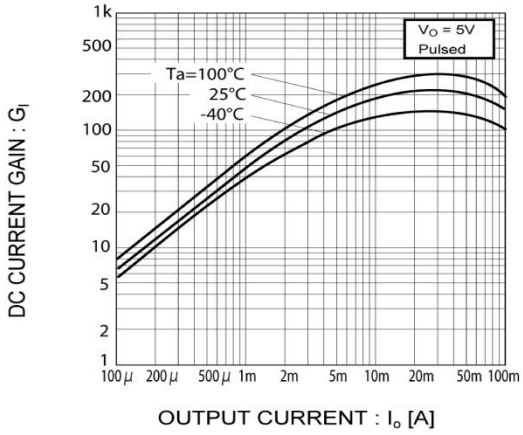
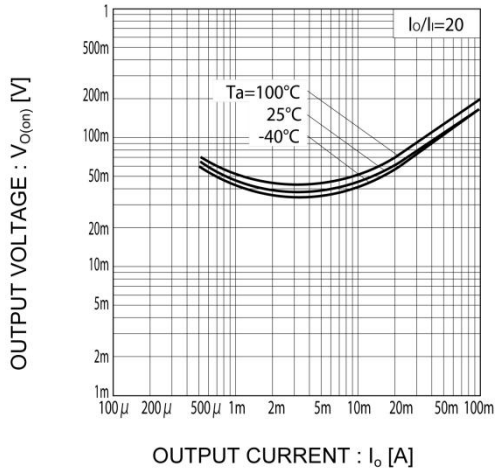
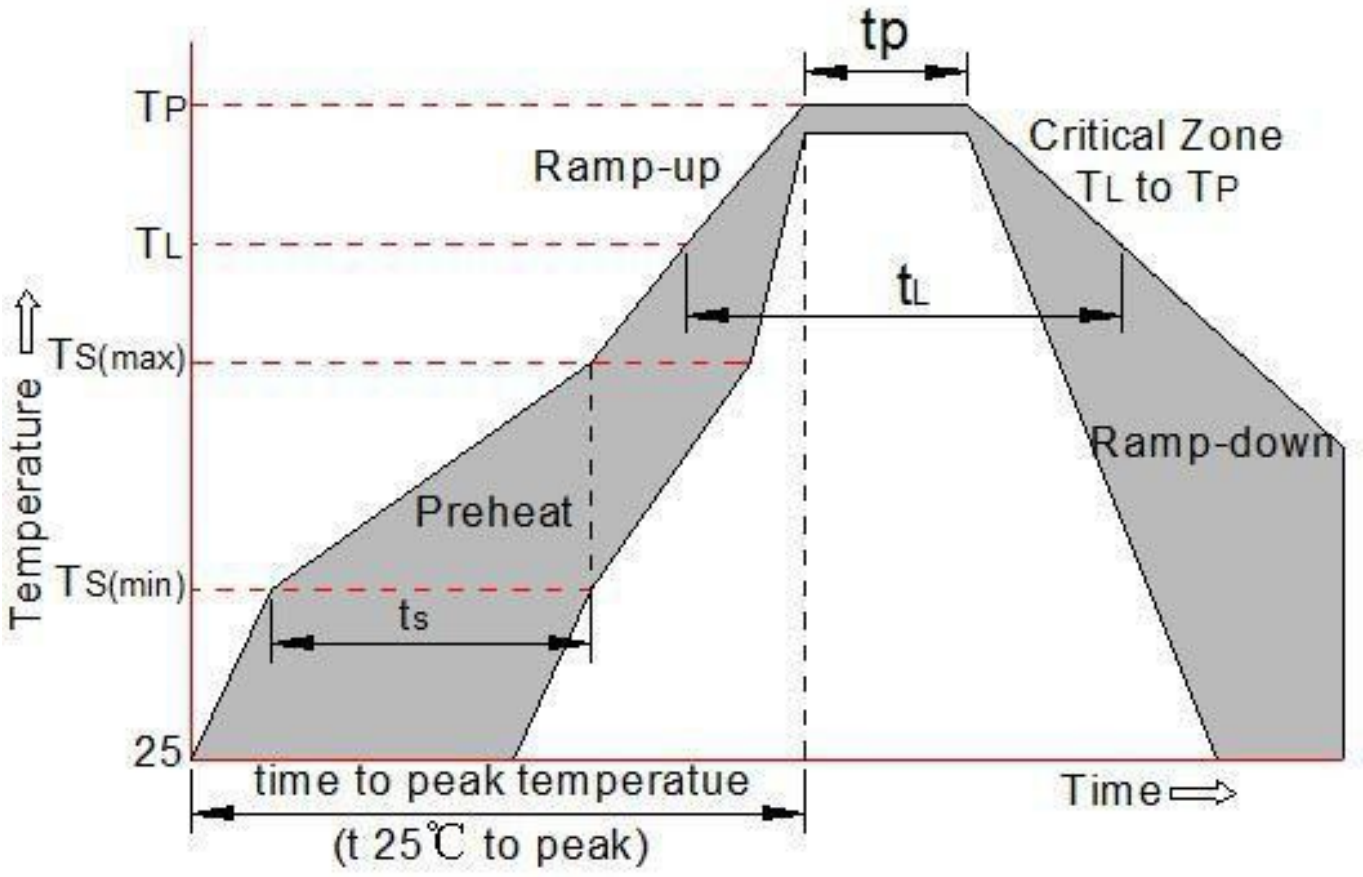


Fig.5 Output voltage vs. output current

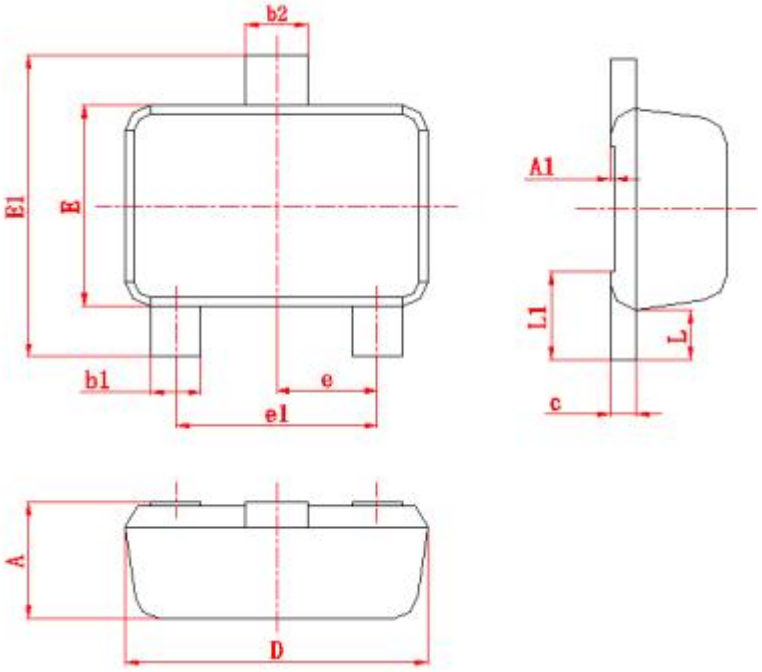


Soldering parameters

Reflow Condition		Pb-Free assembly see as bellow
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

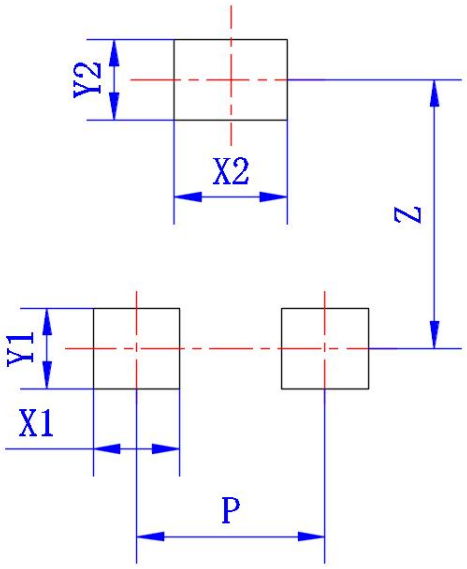


Package mechanical data



Symbol	Dimension in Millimeters	
	min	max
A	0.43	0.5
A1	0	0.05
D	1.15	1.25
E	0.75	0.85
E1	1.15	1.25
e	(0.4)	
e1	0.7	0.9
b1	0.15	0.25
b2	0.25	0.35
c	0.08	0.15
L	0.12	0.28
L1	(0.3)	

Suggested Land Pattern



Symbol	Dimension in Millimeters
	typ
X1	(0.4)
X2	(0.45)
Y1	(0.4)
Y2	(0.4)
P	(0.8)
Z	(1.1)