

Bias Resistor Transistor

NPN Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTTC144TLT1G

● Applications

Inverter, Interface, Driver

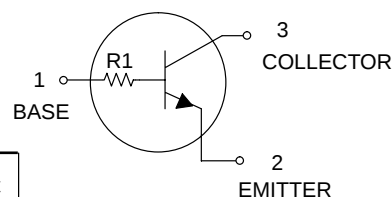
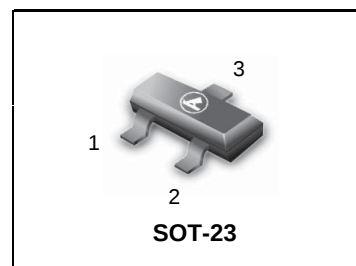
● Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- 2) 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.
- 3) Only the on/off conditions need to be set for operation, making the device design easy.

- We declare that the material of product compliance with RoHS requirements.

● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	
Collector current	I_C	100	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55 to +150	°C



DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTTC144TLT1G	A8T	47	-	3000/Tape & Reel
LDTTC144TLT3G	A8T	47	-	10000/Tape & Reel

● Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	-	-	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	50	-	-	V	$I_C=2mA$
Emitter-base breakdown voltage	BV_{EBO}	5	-	-	V	$I_E=50\mu A$
Collector cutoff current	I_{CBO}	-	-	0.5	μA	$V_{CB}=50V$
Emitter cutoff current	I_{EBO}	-	-	0.5	μA	$V_{EB}=4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.3	V	$I_C/I_B=5mA/0.5mA$
DC current transfer ratio	h_{FE}	100	250	600	-	$V_{CE}=5V, I_C=1mA$
Input resistance	R_1	32.9	47	61.1	k Ω	-
Transition frequency	f_T *	-	250	-	MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz$

* Characteristics of built-in transistor

LDTTC144TLT1G

●Electrical characteristic curves

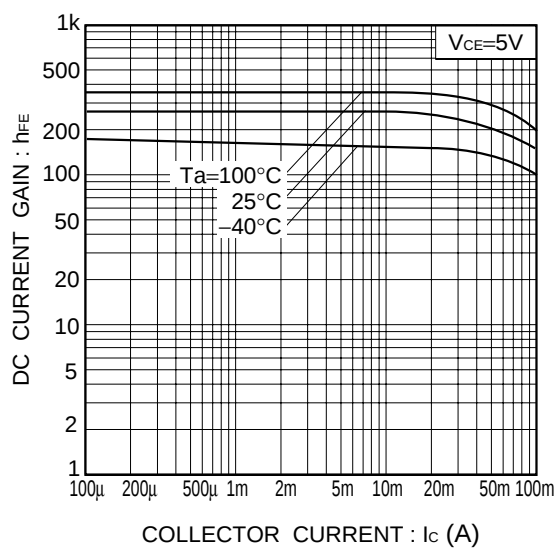


Fig.1 DC current gain vs. collector current

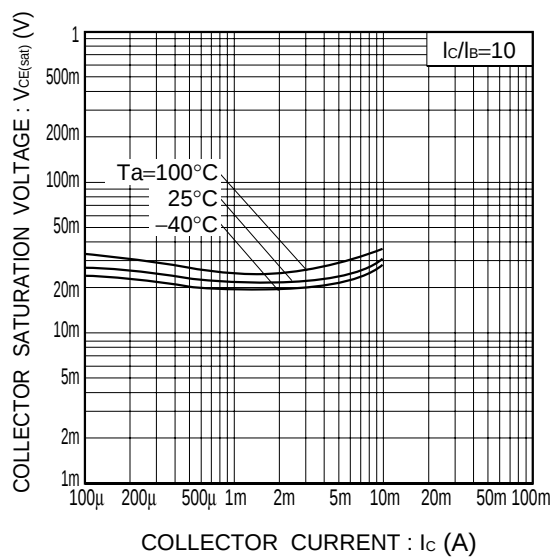
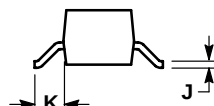
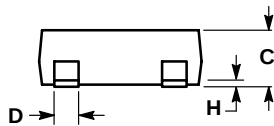
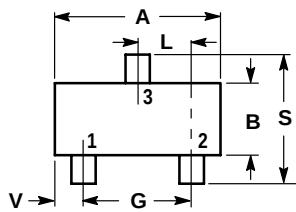


Fig.2 Collector-emitter saturation voltage vs. collector current

LDTC144TLT1G
SOT-23
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
E	0.0701	0.0807	1.78	2.04
F	0.0005	0.0040	0.013	0.100
G	0.0034	0.0070	0.085	0.177
H	0.0140	0.0285	0.35	0.69
I	0.0350	0.0401	0.89	1.02
J	0.0830	0.1039	2.10	2.64
K	0.0177	0.0236	0.45	0.60

