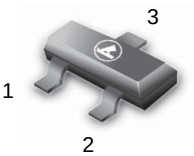
Bias Resistor Transistor

NPN Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTD143TLT1G
S-LDTD143TLT1G



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- **Applications**

  Inverter, Interface, Driver

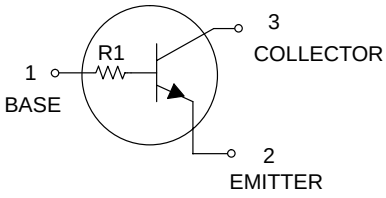
- **Features**

  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.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	500	mA
Collector power dissipation	P_C	200	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	–55 to +150	℃

DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTD143TLT1G S-LDTD143TLT1G	E2	4.7	–	3000/Tape & Reel
LDTD143TLT3G S-LDTD143TLT3G	E2	4.7	–	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=50μA
Collector-emitter breakdown voltage	BV_{CEO}	40	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	–	–	V	I_E=50μA
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=50mA/2.5mA
DC current transfer ratio	h_{FE}	100	250	600	–	V_{CE}=5V, I_C=50mA
Input resistance	R_1	3.29	4.7	6.11	kΩ	–
Transition frequency	f_T *	–	200	–	MHz	V_{CE}=10V, I_E= –50mA, f=100MHz

* Characteristics of built-in transistor

LDTD143TLT1G;S-LDTD143TLT1G

●Electrical characteristic curves

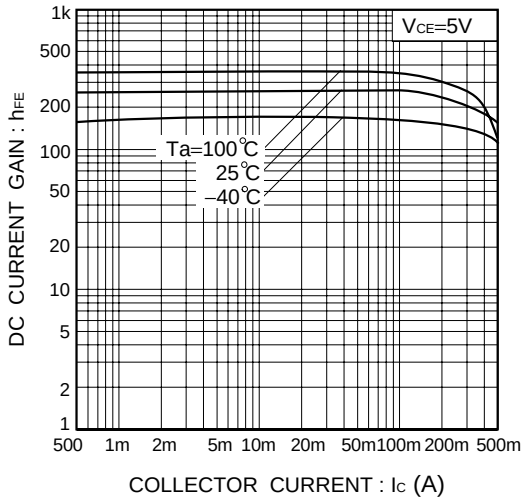


Fig.1 DC current gain vs. collector current

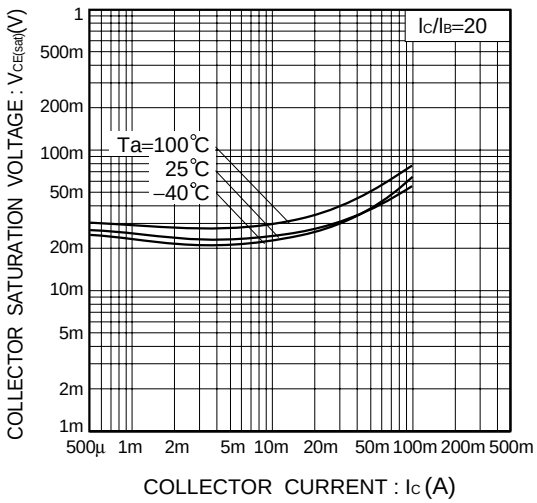


Fig.2 Collector-emitter saturation voltage vs. collector current

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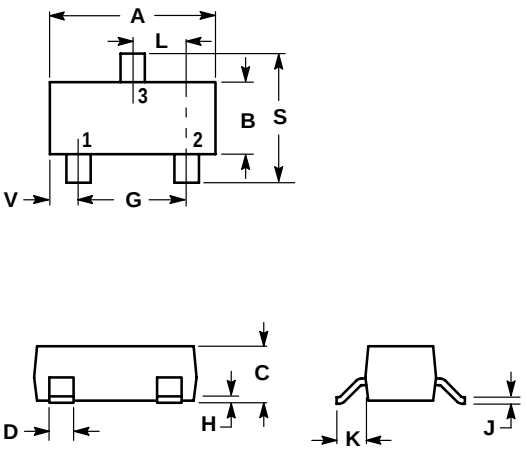

NOTES:

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
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60