Bias Resistor Transistor

NPN Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTC144GLT1G

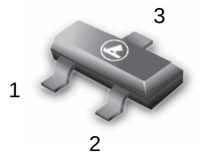
- **Applications**

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.



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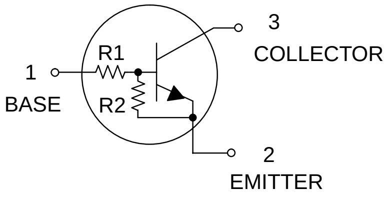

●**Absolute maximum ratings** (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	50	V
Collector-emitter voltage		V_{CEO}	50	V
Emitter-base voltage		V_{EBO}	5	V
Collector current		I_C	100	mA
Collector Power dissipation	DTC144GE	Pc	150	mW
	DTC144GUA / DTC144GKA		200	
	DTC144GSA		300	
Junction temperature		Tj	150	℃
Storage temperature		Tstg	–55 to +150	℃

DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTC144GLT1G	L1	–	47	3000/Tape & Reel
LDTC144GLT3G	L1	–	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=50μA
Collector-emitter breakdown voltage	BV_{CEO}	50	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	–	–	V	I_E=160μA
Collector cutoff current	I_{CBO}	–	–	0.5	μA	V_{CB}=50V
Emitter cutoff current	I_{EBO}	65	–	130	μA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.3	V	I_C=10mA , I_B=0.5mA
DC current transfer ratio	h_{FE}	68	–	–	–	I_C=5mA , V_{CE}=5V
Emitter-base resistance	R	32.9	47	61.1	kΩ	–
Transition frequency	f_T	–	250	–	MHz	V_{CE}=10V , I_E= –5mA , f=100MHz ⁎

⁎ Transition frequency of the device.

●Electrical characteristic curves

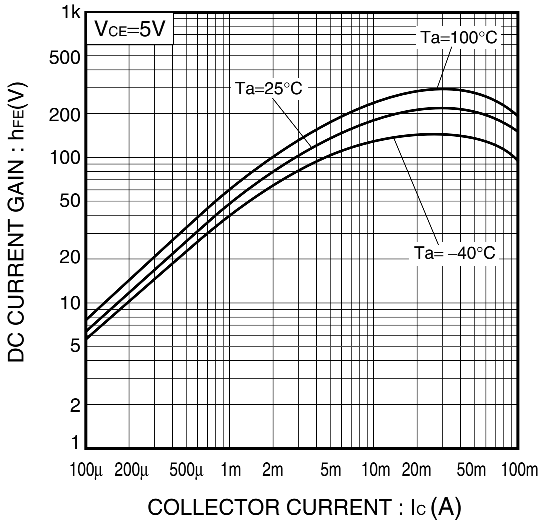

Fig.1 DC current gain vs. Collector current

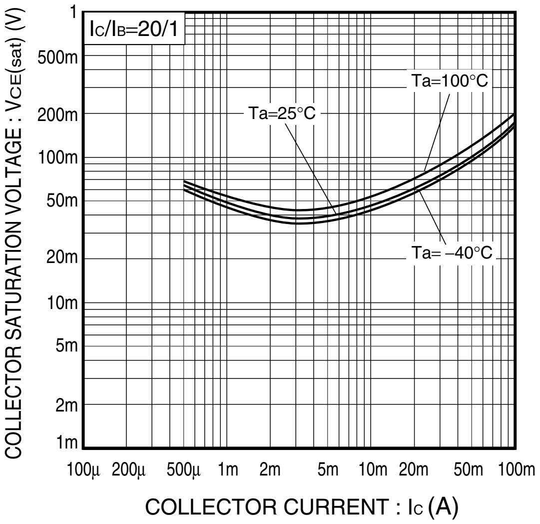

Fig.2 Collector-Emitter saturation voltage vs. Collector current

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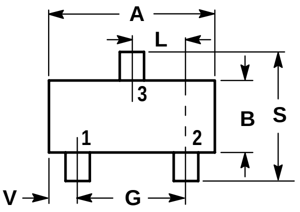

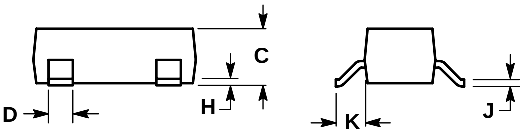

NOTES:

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