Bias Resistor Transistor

PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTBG12GPLT1G

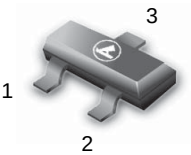
●**Applications**

Driver

●**Features**

1) High h_{FE}.
   300 (Min.) (V_{CE} / I_C=2V / 0.5A)
2) Low saturation voltage,
   ($V_{CE(sat)}$=0.4V at I_C / I_B=500mA / 5mA)
3) Built-in zener diode gives strong protection against reverse surge by L- load (an inductive load).

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



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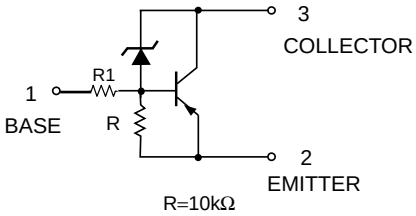

R=10kΩ

●**Structure**

NPN epitaxial planar silicon transistor
(with built-in resistor and zener diode)

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	-60±10	V
Collector-emitter voltage	V_{CEO}	-60 ±10	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-1	A
	I_{CP}	-2 ∗1	A
Collector power dissipation	P_C	0.5	W
		2 ∗2	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

∗1 Pw≤10ms, Duty cycle≤1/2
∗2 When mounted on a 40×40×0.7 mm ceramic board.

DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTBG12GPLT1G	Q8	1	22	3000/Tape & Reel
LDTBG12GPLT3G	Q8	1	22	10000/Tape & Reel

●**Electrical characteristics** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-50	–	-70	V	I_C=-50μA
Collector-emitter breakdown voltage	BV_{CEO}	-50	–	-70	V	I_C=-1mA
Emitter-base breakdown voltage	BV_{EBO}	-5	–	–	V	I_E=-720μA
Collector cutoff current	I_{CBO}	–	–	-0.5	μA	V_{CB}=-40V
Emitter cutoff current	I_{EBO}	-300	–	-580	μA	V_{EB}=-4V
Collector-emitter saturation voltage	V_{CE}(sat)	–	–	-0.4	V	I_C/I_B=-500mA/-5mA
DC current transfer ratio	h_{FE}	300	–	–	–	V_{CE}=-2V, I_C=-500mA
Emitter-base resistance	R	7	10	13	kΩ	–
Transition frequency	f_T ∗	–	80	–	MHz	V_{CE}=-5V, I_E=–-0.1A, f=-30MHz

∗ Characteristics of built-in transistor

LDTBG12GPLT1G

●Electrical characteristic curves

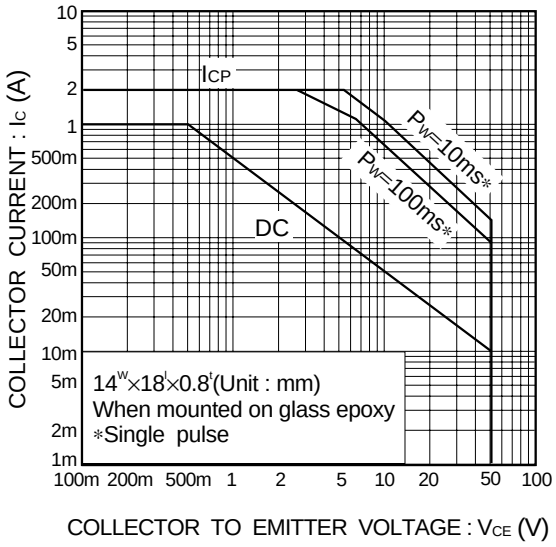

Fig.1 Safe operating area

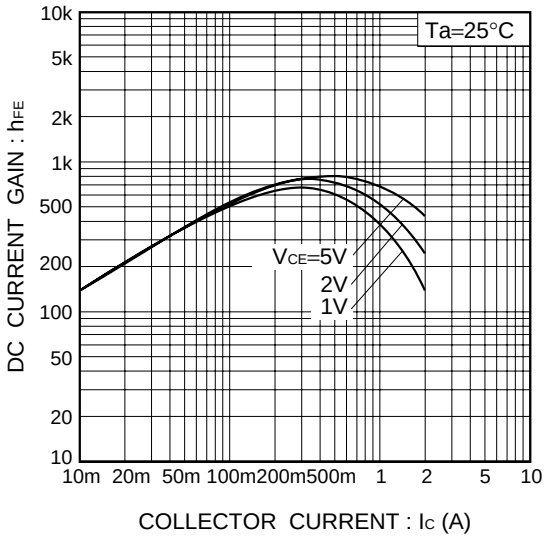

Fig.2 DC current gain vs. collector current

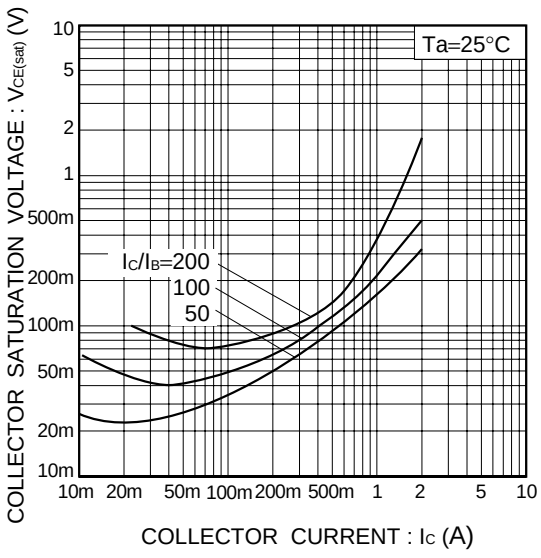

Fig.3 Collector-emitter saturation voltage vs. collector current

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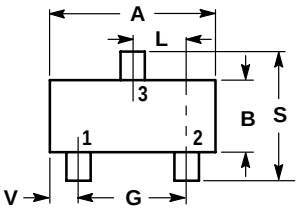

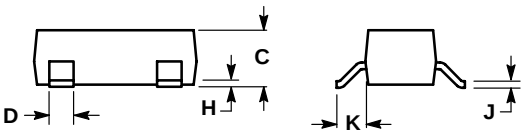

NOTES:

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