

Bias Resistor Transistor

PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTBG12GPT1G

●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.

●Structure

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

●Absolute maximum ratings ($T_a = 25^\circ C$)

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	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to $+150$	$^\circ C$

 *1 $P_W \leq 10ms$, Duty cycle $\leq 1/2$

 *2 When mounted on a $40 \times 40 \times 0.7$ mm ceramic board.

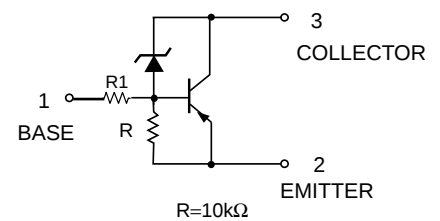
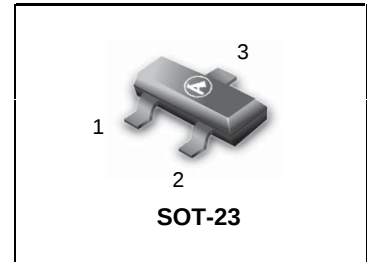
DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTBG12GPT1G	Q8	1	22	3000/Tape & Reel
LDTBG12GPT3G	Q8	1	22	10000/Tape & Reel

●Electrical characteristics ($T_a = 25^\circ C$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-50	—	-70	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-50	—	-70	V	$I_C = -1mA$
Emitter-base breakdown voltage	BV_{EBO}	-5	—	—	V	$I_E = -720\mu A$
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	$k\Omega$	—
Transition frequency	f_T *	—	80	—	MHz	$V_{CE} = -5V, I_E = -0.1A, f = 30MHz$

* Characteristics of built-in transistor



LDTBG12GPT1G

●Electrical characteristic curves

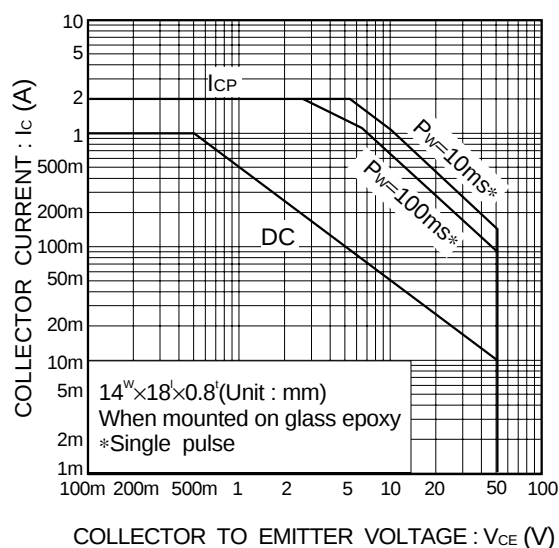


Fig.1 Safe operating area

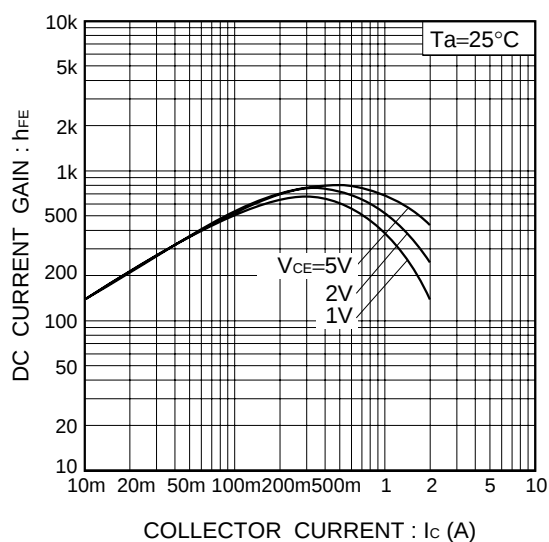


Fig.2 DC current gain vs. collector current

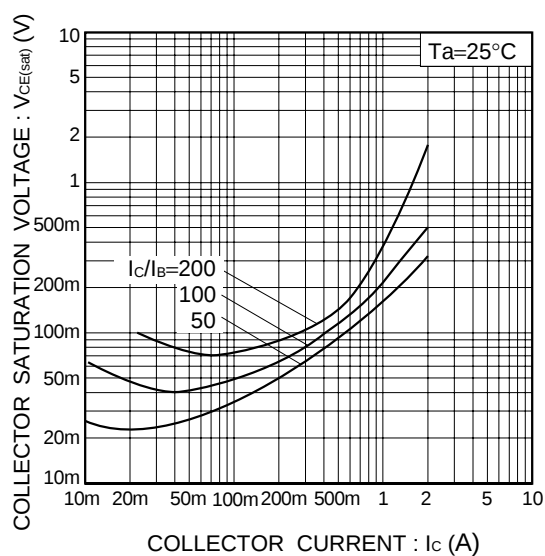
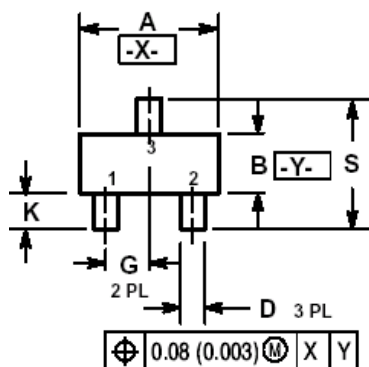
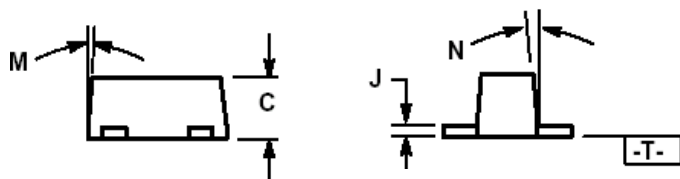


Fig.3 Collector-emitter saturation voltage vs. collector current

LDTBG12GPT1G
SC-89

NOTES:

- 1.DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 2.CONTROLLING DIMENSION: MILLIMETERS
- 3.MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
- 4.463C-01 OBSOLETE, NEW STANDARD 463C-02.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.50	1.60	1.70	0.059	0.063	0.067
B	0.75	0.85	0.95	0.030	0.034	0.040
C	0.60	0.70	0.80	0.024	0.028	0.031
D	0.23	0.28	0.33	0.009	0.011	0.013
G	0.50 BSC			0.020 BSC		
H	0.53 REF			0.021 REF		
J	0.10	0.15	0.20	0.004	0.006	0.008
K	0.30	0.40	0.50	0.012	0.016	0.020
L	1.10 REF			0.043 REF		
M	---	---	10 °	---	---	10 °
N	---	---	10 °	---	---	10 °
S	1.50	1.60	1.70	0.059	0.063	0.067

