Bias Resistor Transistor

PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTB114GWT1G
S-LDTB114GWT1G

SOT–323 (SC–70)

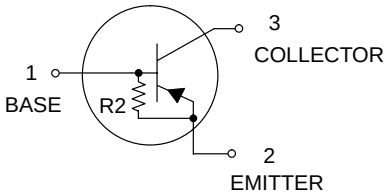
- **Applications**

  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}	–50	V
Emitter-base voltage	V_{EBO}	–5	V
Collector current	I_C	–500	mA
Collector power dissipation	Pd *	200	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	–55 to +150	℃

* Each pin mounted on the recommended land

DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTB114GWT1G S-LDTB114GWT1G	K7	–	10	3000/Tape & Reel
LDTB114GWT3G S-LDTB114GWT3G	K7	–	10	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= –720μA
Collector cutoff current	I_{CBO}	–	–	–0.5	μA	V_{CB}= –50V
Emitter cutoff curren	I_{EBO}	–	–	–580	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}	56	–	–	–	I_C= –50mA , V_{CE}= –5V
Emitter-base resistance	R2	7	10	13	kΩ	–
Transition frequency	f_T *	–	200	–	MHz	V_{CE}= –10V , I_E=50mA , f=100MHz

*Characteristics of built-in transistor

LDTB114GWT1G ;S-LDTB114GWT1G

●Electrical characteristic curves

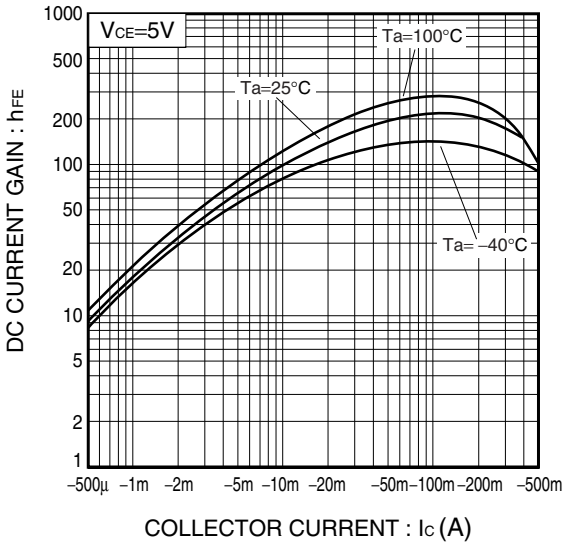


Fig.1 DC current transfer ratio vs. Collector current

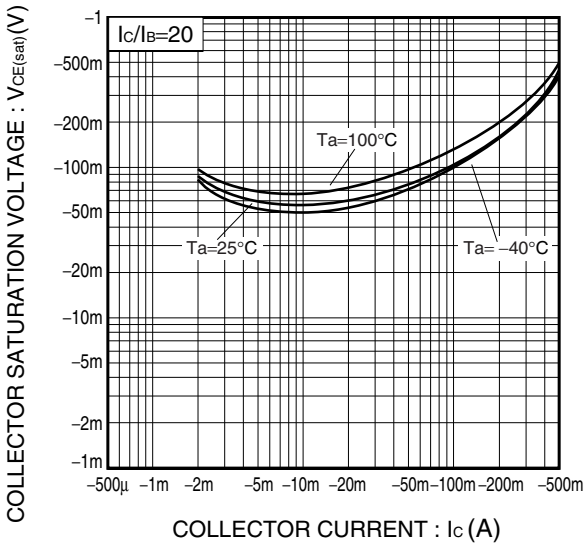
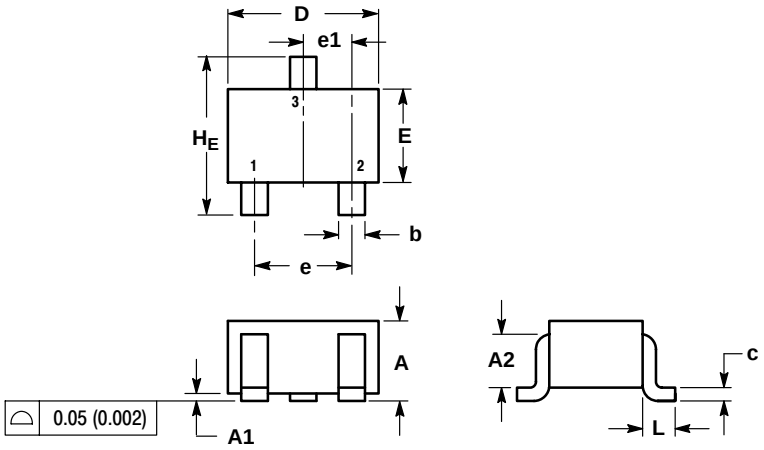


Fig.2 Collector-Emitter saturation voltage vs. Collector current

LDTB114GWT1G ;S-LDTB114GWT1G

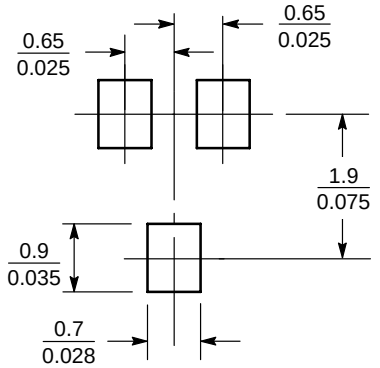
SC−70 (SOT−323)



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

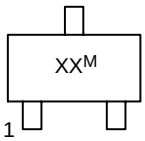
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2		0.7 REF			0.028 REF	
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1		0.65 BSC			0.026 BSC	
L		0.425 REF			0.017 REF	
H_E	2.00	2.10	2.40	0.079	0.083	0.095

SOLDERING FOOTPRINT*



SCALE 10:1 $\left(\frac{mm}{inches}\right)$

GENERIC MARKING DIAGRAM



XX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.