RENESAS

DATA SHEET

DARLINGTON TRASISTOR

Phase-out/Discontinued

2SB1465

PNP SILICON EPITAXIAL TRANSISTOR
(DARLINGTON CONNECTION)
FOR LOW-FREQUENCY POWER AMPLIFIERS AND LOW-SPEED SWITCHING

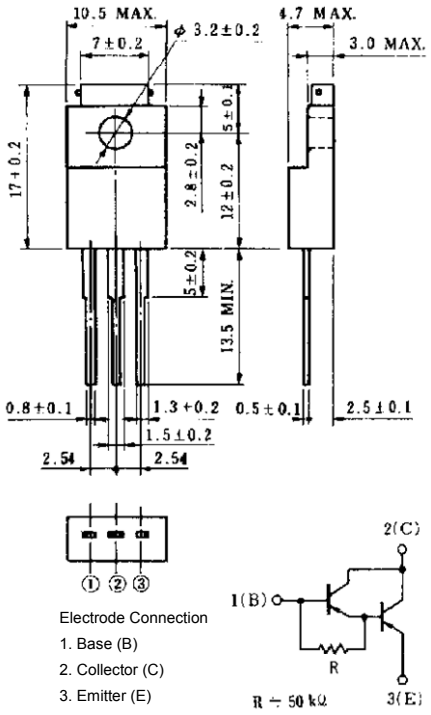
The 2SB1465 is a mold power darlington transistor developed for low-frequency power amplifier and low-speed switching. This transistor is ideal for use in a direct drive from IC output to relay drivers in switching equipment and pulse motor drivers or relay drivers in such as OA and FA equipments.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Collector to base voltage	V_{CBO}	–300	V
Collector to emitter voltage	V_{CEO}	–300	V
Emitter to base voltage	V_{EBO}	–7	V
Collector current (DC)	$I_{C(DC)}$	–300	mA
Collector current (pulse) **Note**	$I_{C(pulse)}$	–600	mA
Base current	$I_{B(DC)}$	–30	mA
Total power dissipation (T_C = 25°C)	P_{T1}	25	W
Total power dissipation (T_A = 25°C)	P_{T2}	2.0	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

Note PW ≤ 300 μs, duty cycle ≤ 10%

PACKAGE DRAWING (UNIT: mm)



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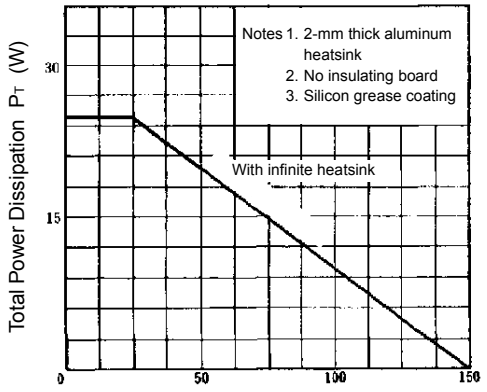
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	V_{CB} = –300 V, I_E = 0			–10	μA
Collector cutoff current	I_{CEO}	V_{CE} = –60 V, R_{BE} = ∞			–10	μA
Emitter cutoff current	I_{EBO}	V_{EB} = –5 V, I_C = 0			–10	μA
DC current gain Note	h_{FE1}	V_{CE} = –1.5 V, I_C = –20 mA	1,000			
DC current gain Note	h_{FE2}	V_{CE} = –1.5 V, I_C = –100 mA	1,500	6,000	30,000	
Collector saturation voltage Note	$V_{CE(sat)}$	I_C = –100 mA, I_B = –0.2 mA		–0.8	–1.5	V
Base saturation voltage Note	$V_{BE(sat)}$	I_C = –100 mA, I_B = –0.2 mA		–1.4	–2.0	V
Gain bandwidth product	f_T	V_{CE} = –1.5 V, I_C = –20 mA		25		MHz
Collector capacitance	C_{ob}	V_{CB} = –10 V, I_E = 0, f = 1.0 MHz		30		pF

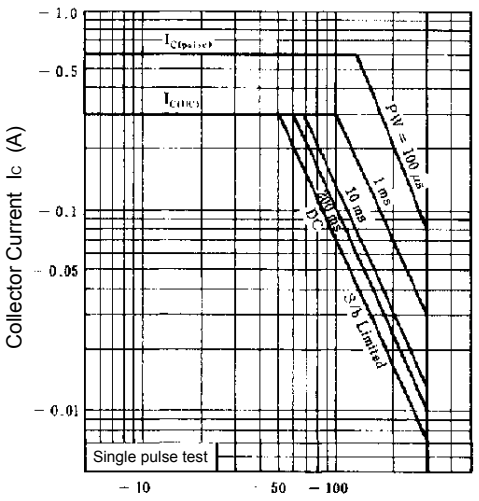
Note Pulsed PW ≤ 350 μs, duty cycle ≤ 2%

TYPICAL CHARACTERISTICS (T_A = 25°C)

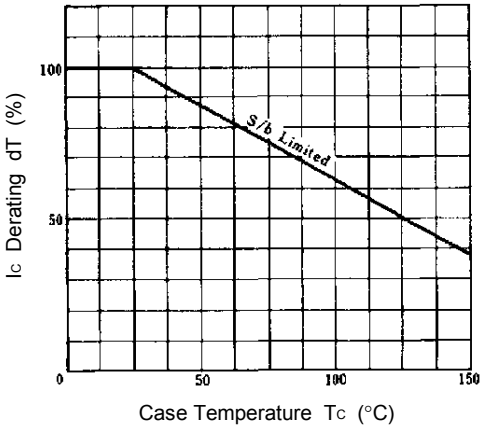
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



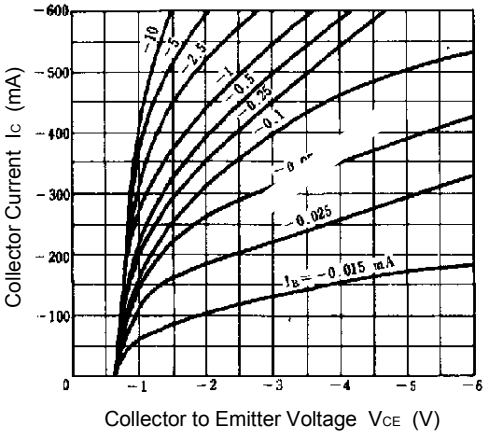
FORWARD BIAS SAFE OPERATING AREA



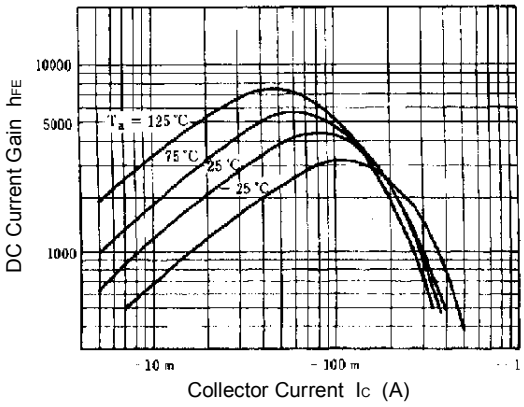
DERATING CURVE OF SAFE OPERATING AREA



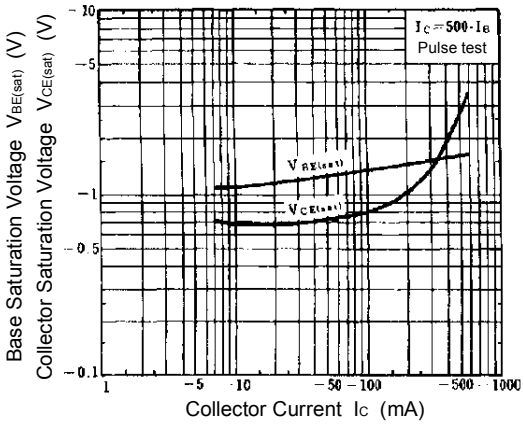
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



DC CURRENT GAIN vs.
COLLECTOR CURRENT



COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



COLLECTOR TO BASE CAPACITANCE
vs. COLLECTOR TO BASE VOLTAGE