NEC

DARLINGTON POWER TRANSISTOR
2SB1465

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

The 2SB1465 is a mold power 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 equipment.

QUALITY GRADES

- Standard

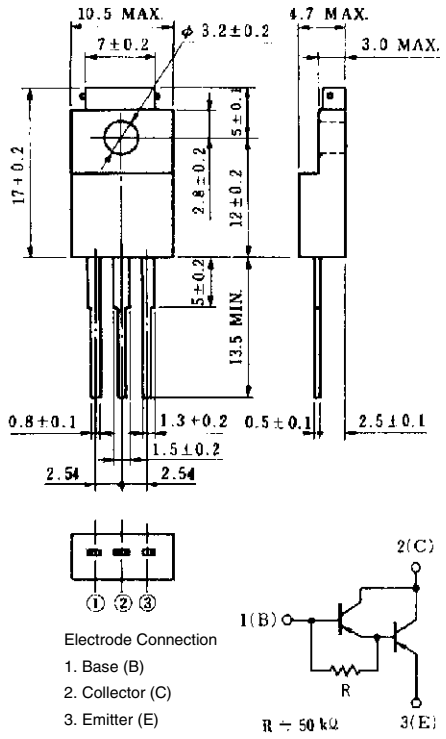
  Please refer to **Quality Grades on NEC Semiconductor Devices** (Document No. C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
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	$I_{C(DC)}$	−300	mA
Collector current	$I_{C(pulse)}$*	−600	mA
Base current	$I_{B(DC)}$	−30	mA
Total power dissipation	P_T (Tc = 25°C)	25	W
Total power dissipation	P_T (Ta = 25°C)	2.0	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

* PW ≤ 300 μs, duty cycle ≤ 10%

PACKAGE DRAWING (UNIT: mm)



Document No. D16130EJ1V0DS00 (1st edition)
Date Published April 2002 N CP(K)
Printed in Japan

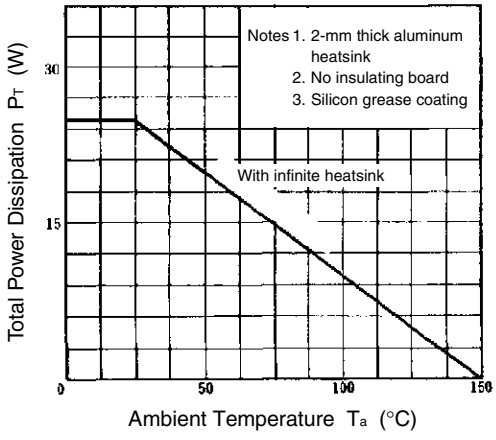
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	h_{FE1}**	V_{CE} = –1.5 V, I_C = –20 mA	1,000			
DC current gain	h_{FE2}**	V_{CE} = –1.5 V, I_C = –100 mA	1,500	6,000	30,000	
Collector saturation voltage	$V_{CE(sat)}$**	I_C = –100 mA, I_B = –0.2 mA		–0.8	–1.5	V
Base saturation voltage	$V_{BE(sat)}$**	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

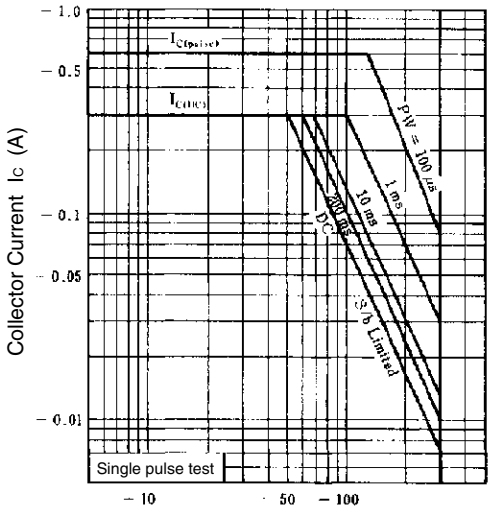
** Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

TYPICAL CHARACTERISTICS (Ta = 25°C)

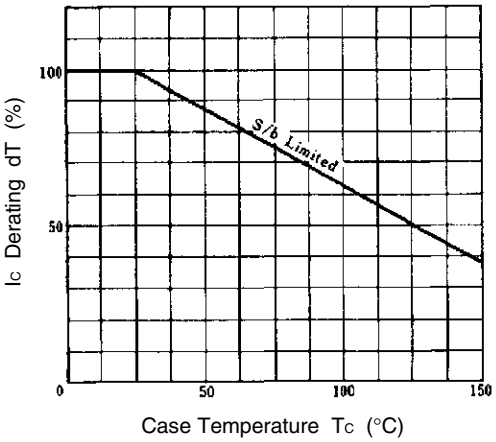
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



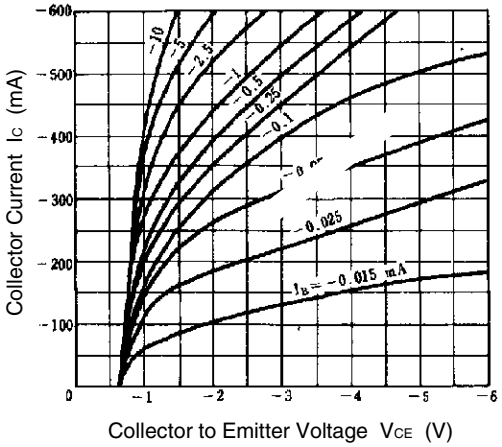
FORWARD BIAS SAFE OPERATING AREA



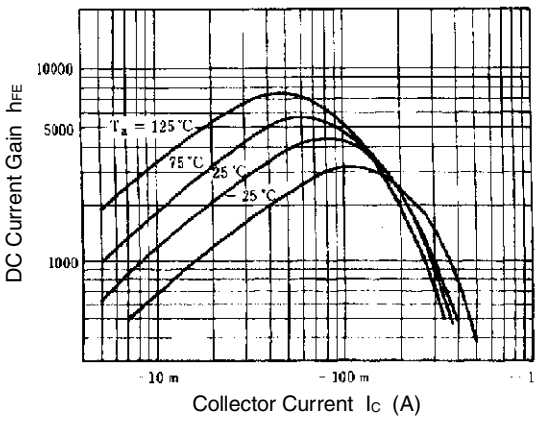
DERATING CURVE OF SAFE OPERATING AREA



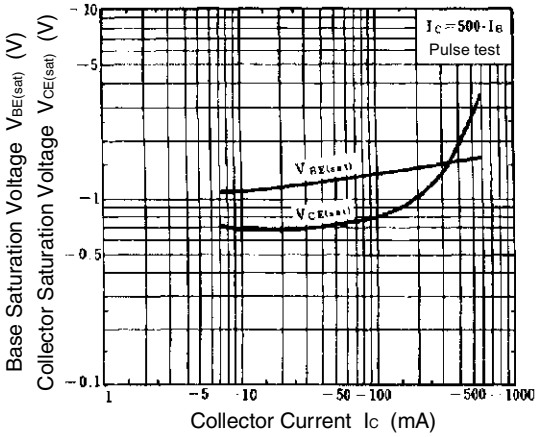
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



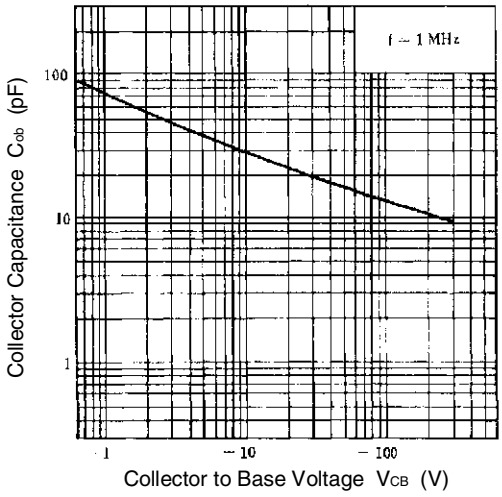
DC CURRENT GAIN vs.
COLLECTOR CURRENT



COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



COLLECTOR TO BASE CAPACITANCE
vs. COLLECTOR TO BASE VOLTAGE



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