

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

The 2SB1432 is a Darlington power transistor that can be directly driven from the output of an IC. This transistor is ideal for OA and FA equipment such as motor and solenoid drivers.

In addition, a small resin-molded insulation type package contributes to high-density mounting and reduction of mounting cost.

FEATURES

- High  $h_{FE}$  due to Darlington connection  
 $h_{FE} \geq 1,000$  @  $V_{CE} = -2.0$  V,  $I_C = -10$  A
- Mold package that does not require an insulation board or insulation bushing

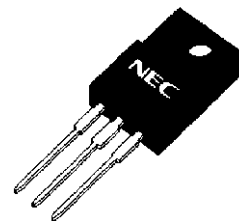
ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Ratings	Unit
Collector to base voltage	$V_{CBO}$		-100	V
Collector to emitter voltage	$V_{CEO}$		-100	V
Emitter to base voltage	$V_{EBO}$		-8.0	V
Collector current (DC)	$I_{C(DC)}$		$\mp 10$	A
Collector current (pulse)	$I_{C(pulse)}$	$PW \leq 300 \mu s$ , duty cycle $\leq 10\%$	$\mp 20$	A
Base current (DC)	$I_{B(DC)}$		-1.0	A
Total power dissipation	$P_T$	$T_C = 25^\circ\text{C}$	30	W
		$T_A = 25^\circ\text{C}$	2.0	W
Junction temperature	$T_j$		150	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

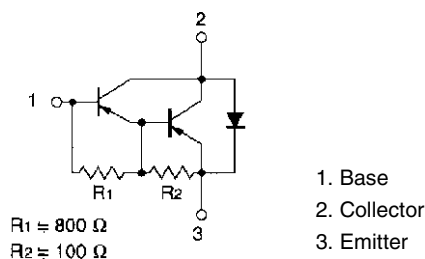
ORDERING INFORMATION

Part No.	Package
2SB1432	Isolated TO-220

(Isolated TO-220)



INTERNAL EQUIVALENT CIRCUIT



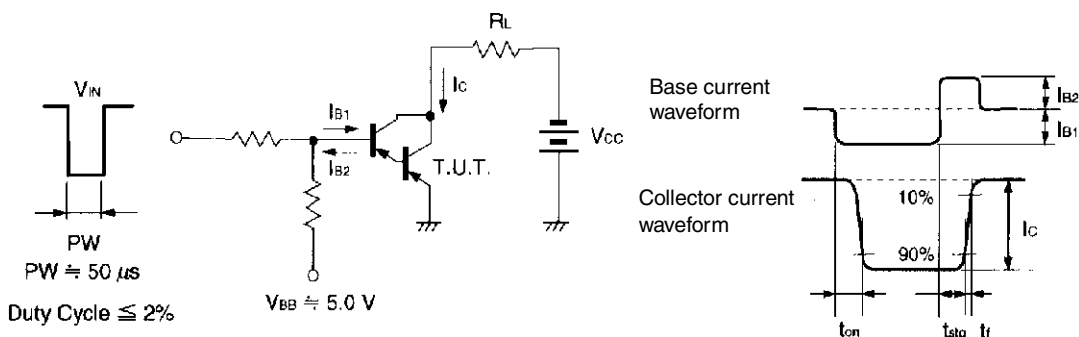
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**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)**

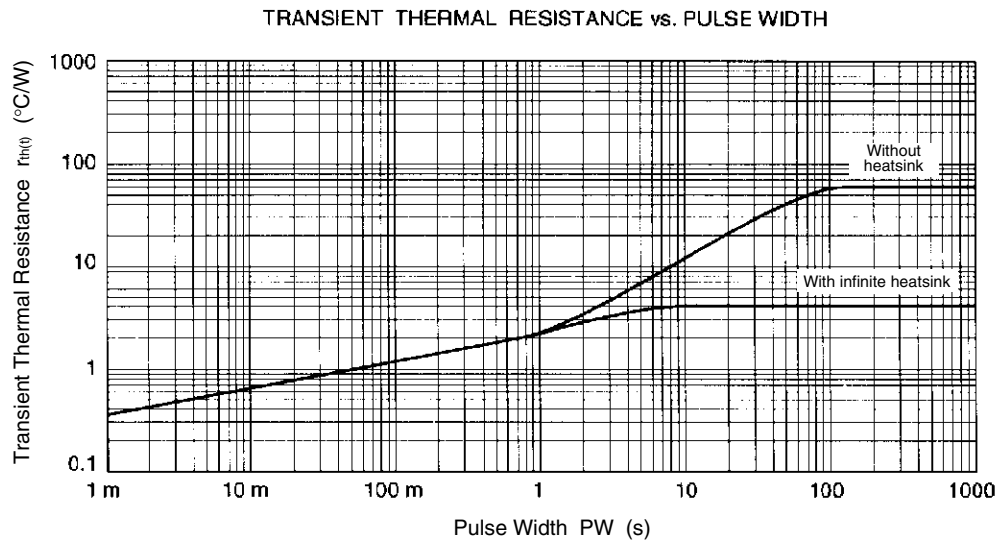
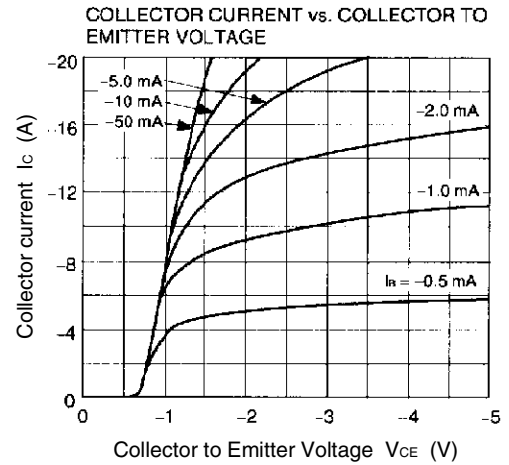
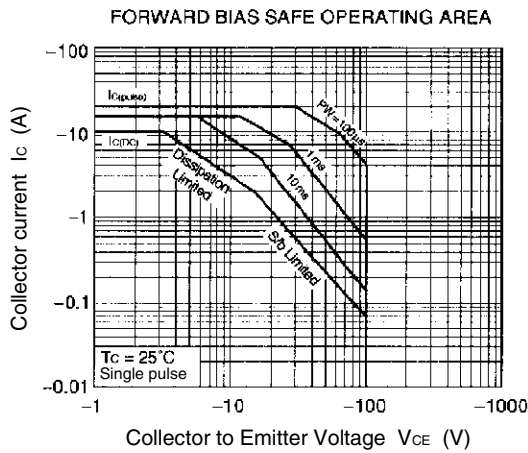
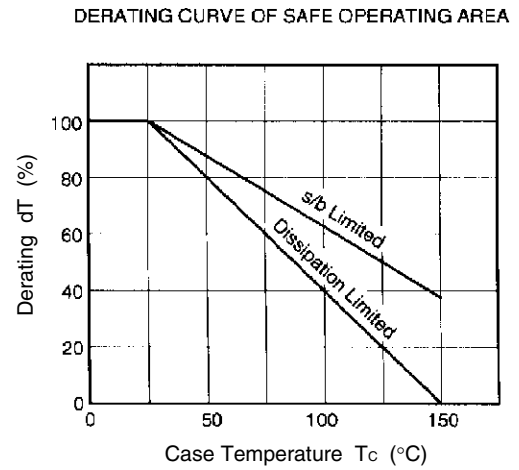
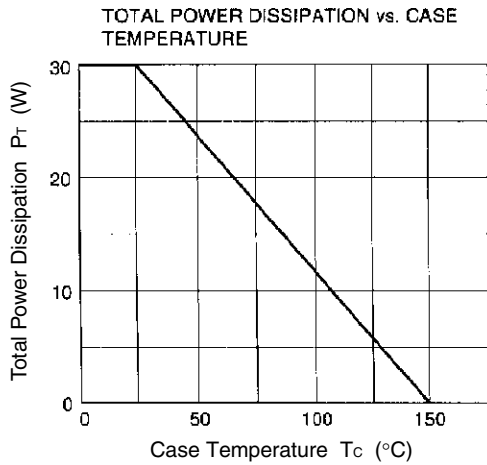
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I <sub>CB0</sub>	V <sub>CB</sub> = -100 V, I <sub>E</sub> = 0 A			-10	μA
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -2.0 V, I <sub>C</sub> = -10 A <sup>Note</sup>	1,000	6,000	30,000	
Collector saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -10 A, I <sub>B</sub> = -25 mA <sup>Note</sup>		-1.1	-1.5	V
Base saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = -10 A, I <sub>B</sub> = -25 mA <sup>Note</sup>		-1.8	-2.2	V
Gain bandwidth product	f <sub>T</sub>	V <sub>CE</sub> = -5.0 V, I <sub>C</sub> = -1.0 A		80		MHz
Collector capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0 A, f = 1.0 MHz		200		pF
Turn-on time	t <sub>on</sub>	I <sub>C</sub> = -10 A, R <sub>L</sub> = 5.0 Ω, I <sub>B1</sub> = -I <sub>B2</sub> = -25 mA, V <sub>CC</sub> ≅ -50 V Refer to the test circuit.		1.0		μs
Storage time	t <sub>stg</sub>			5.0		μs
Fall time	t <sub>f</sub>			2.0		μs

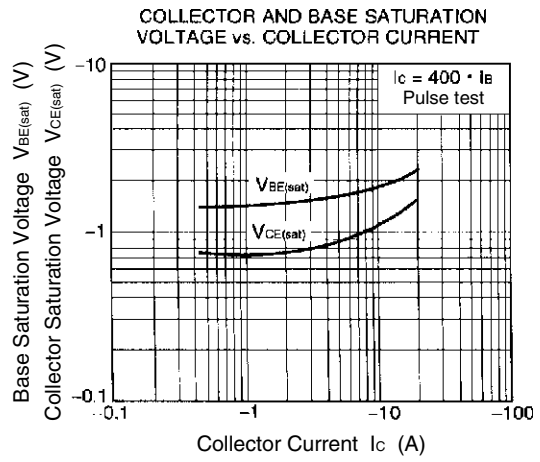
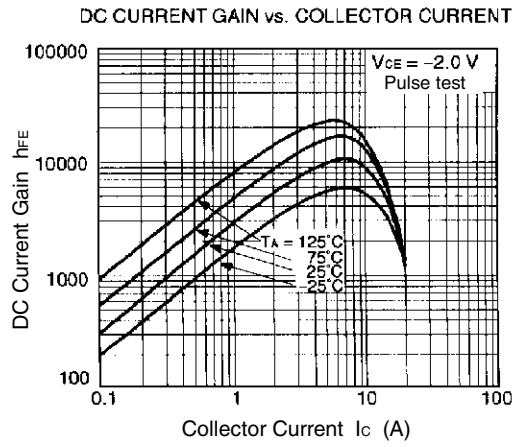
**Note** Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

**SWITCHING TIME (t<sub>on</sub>, t<sub>stg</sub>, t<sub>f</sub>) TEST CIRCUIT**



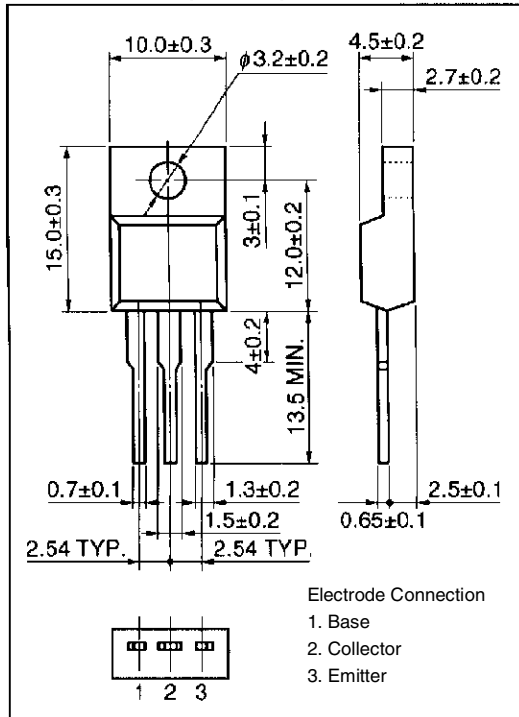
TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)





PACKAGE DRAWING (UNIT: mm)

Isolated TO-220 (MP-45F)



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