

NPN SILICON EPITAXIAL TRANSISTOR  
FOR LOW-FREQUENCY POWER AMPLIFIERS AND MID-SPEED SWITCHING

The 2SD2463 is a Darlington connection transistor with on-chip dumper diode in collector to emitter and zener diode in collector to base. This transistor is ideal for use in acuator drives such as motors, relays, and solenoids.

FEATURES

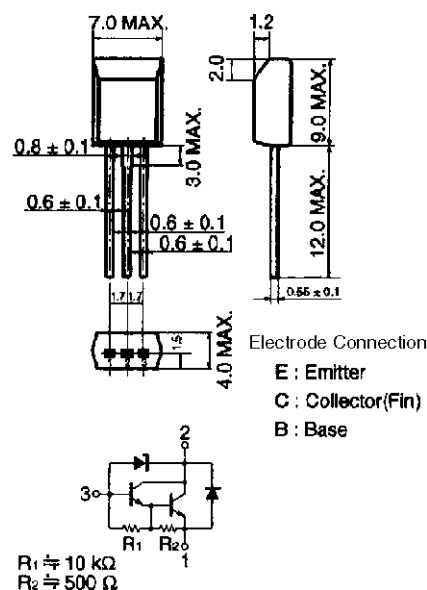
- Cost reduction available due to on-chip dumper diode (C to E) and zener diode (C to B)
- Low collector saturation voltage
- Insulation type package supportable for radial taping

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.

PACKAGE DRAWING (UNIT: mm)



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Conditions	Ratings	Unit
Collector to base voltage	V <sub>CB0</sub>		31±4	V
Collector to emitter voltage	V <sub>CE0</sub>		31±4	V
Emitter to base voltage	V <sub>EB0</sub>		8.0	V
Collector current (DC)	I <sub>C(DC)</sub>	T <sub>C</sub> = 25°C	±2.0	A
Collector current (pulse)	I <sub>C(pulse)</sub>	PW ≤ 10 ms, Duty cycle ≤ 50%, T <sub>C</sub> = 25°C	±3.0	A
Base current (DC)	I <sub>B(DC)</sub>		0.2	A
Total power dissipation	P <sub>T</sub>		1.0	W
Total power dissipation	P <sub>T</sub>	T <sub>C</sub> = 25°C	6.0	W
Junction temperature	T <sub>J</sub>		150	°C
Storage temperature	T <sub>stg</sub>		-55 to +150	°C

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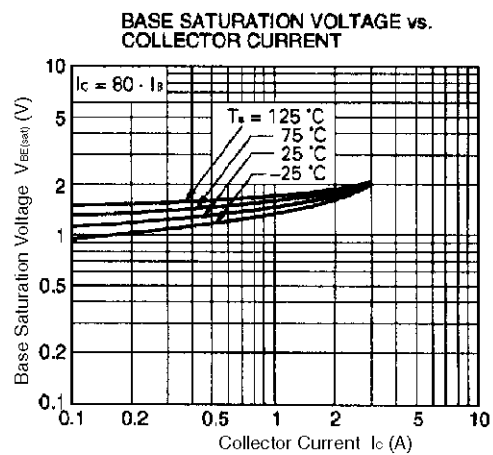
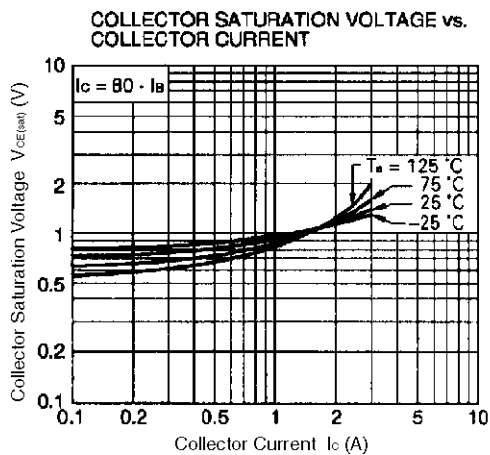
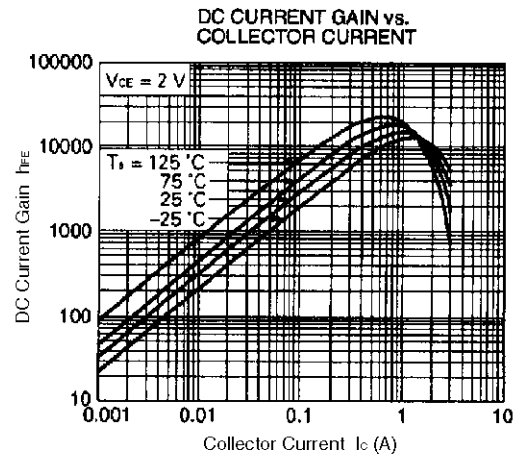
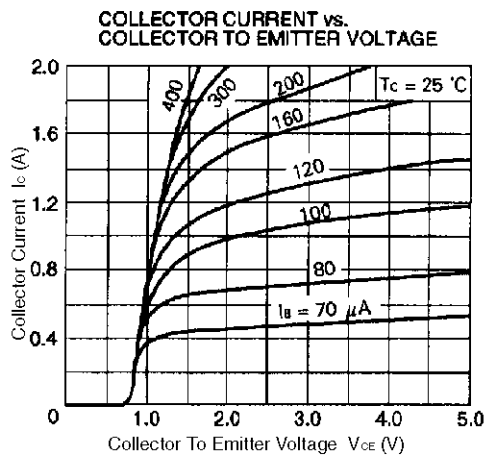
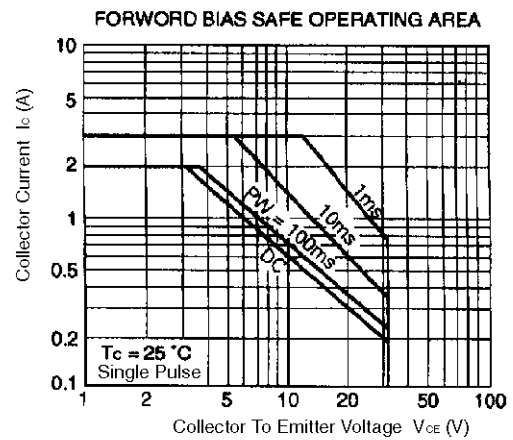
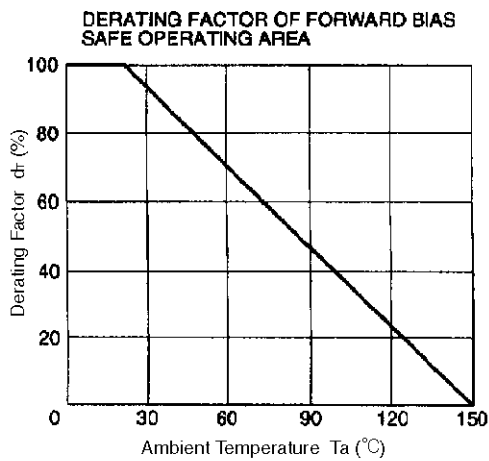
**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 20\text{ V}, I_E = 0$			10	$\mu\text{A}$
DC current gain	$h_{FE1}$	$V_{CE} = 2.0\text{ V}, I_C = 0.5\text{ A}$	1000			–
DC current gain	$h_{FE2}$	$V_{CE} = 2.0\text{ V}, I_C = 1.0\text{ A}$	2000		30000	–
Collector saturation voltage	$V_{CE(sat)}$	$I_C = 1.0\text{ A}, I_B = 1.0\text{ mA}$		0.9	1.2	V
Base saturation voltage	$V_{BE(sat)}$	$I_C = 1.0\text{ A}, I_B = 1.0\text{ mA}$		1.6	2.0	V
Turn-on time	$t_{on}$	$I_C = 1.0\text{ A}, V_{CC} = 20\text{ V}$ $I_{B1} = -I_{B2} = 0.5\text{ mA}$ $R_L = 20\ \Omega$		0.5		$\mu\text{s}$
Storage time	$t_{stg}$			3.0		$\mu\text{s}$
Turn-off time	$t_f$			1.0		$\mu\text{s}$

**$h_{FE}$  CLASSIFICATION**

Marking	M	L	K
$h_{FE2}$	2000 to 5000	4000 to 10000	8000 to 30000

TYPICAL CHARACTERISTICS (Ta = 25°C)



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