

NPN SILICON EPITAXIAL TRANSISTOR

MP-3

2SD1033 is designed for Color TV Vertical Deflection Output, especially in Hybrid Integrated Circuits.

- High Voltage $V_{CE0} = 150\text{ V}$
- Complement to 2SB768

Standard

Please refer to “Quality grade on NEC Semiconductor Devices” (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

Collector to Base Voltage	V_{CBO}	200	V
Collector to Emitter Voltage	V_{CEO}	150	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	2	A
Collector Current (Pulse)*	I_C	3	A
Total Power Dissipation ($T_a = 25\text{ }^{\circ}\text{C}$)**	P_T	2.0	W
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

*PW \leq 10 ms, Duty Cycle \leq 50 %

****When mounted on ceramic substrate of 7.5 cm² × 0.7 mm**

1. Base
2. Collector
3. Emitter
4. Collector

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

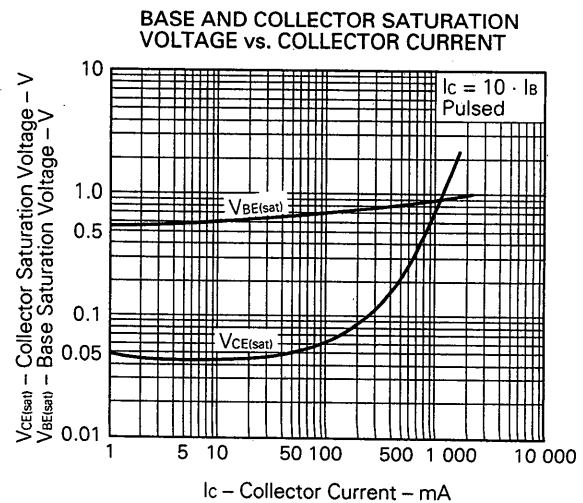
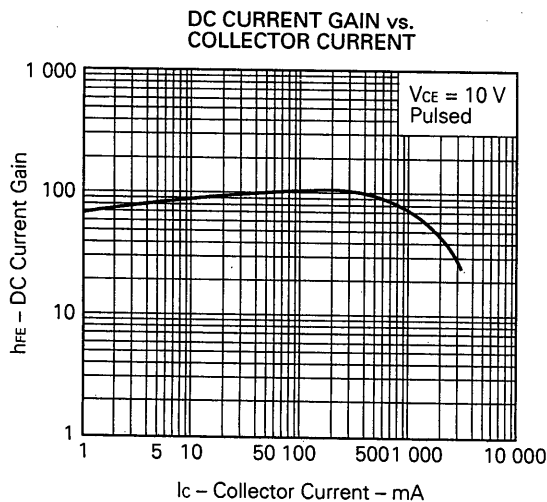
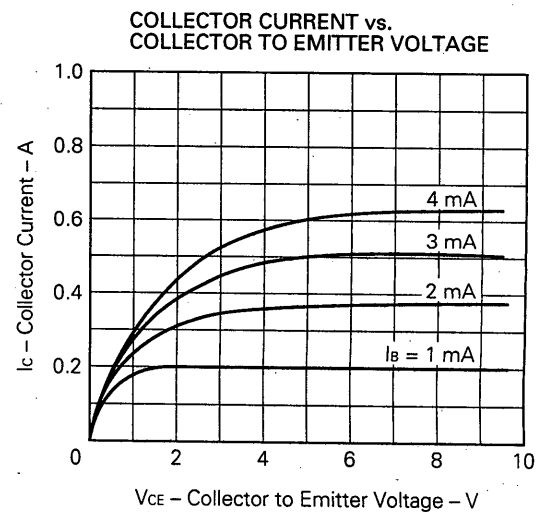
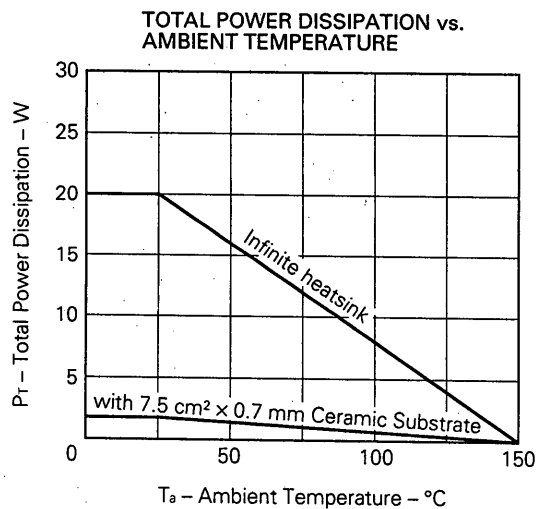
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			50	μA	$V_{CB} = 150\text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			50	μA	$V_{EB} = 4\text{ V}, I_C = 0$
DC Current Gain	h_{FE} ***	40	100	200		$V_{CE} = 10\text{ V}, I_C = 0.4\text{ A}$
Collector Saturation Voltage	$V_{CE(sat)}$ ***		0.2	1.0	V	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$
Gain Bandwidth Product	f_T		10		MHz	$V_{CE} = 10\text{ V}, I_E = 0.4\text{ A}$

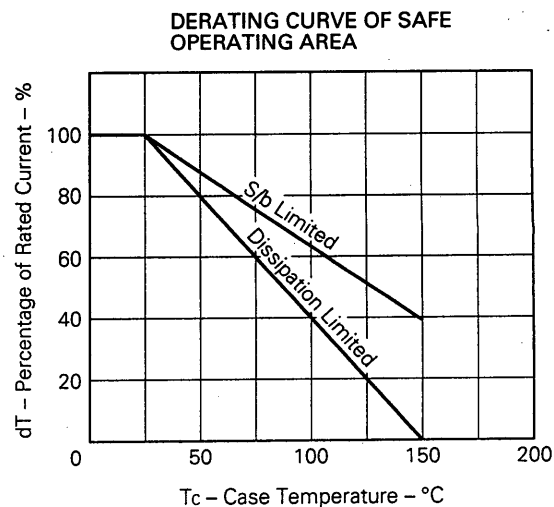
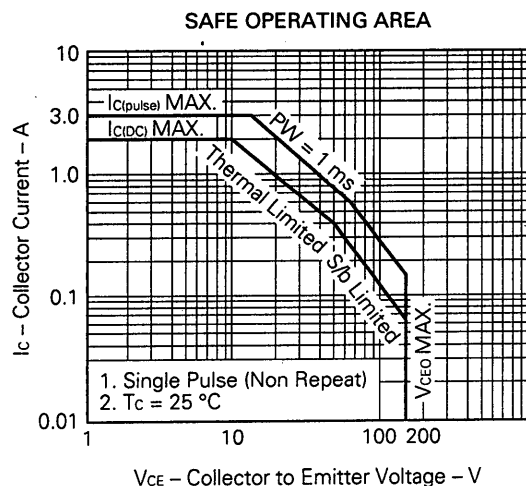
***Pulsed: $PW \leq 350\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

MARKING	M	L	K
h_{FE}	40 to 80	60 to 120	100 to 200

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)





Reference

Application note name	No.
Quality control of NEC semiconductors devices.	TEI-1202
Quality control guide of semiconductors devices.	MEI-1202
Assembly manual of semiconductors devices.	IEI-1207
Design of Push-Pull Type Switching Regulators (Basic)	TEB-1002
Design of Push-Pull Type Switching Regulators (Applications)	TEB-1003
Optimum Base Drive Conditions of Switching Power Transistors	TEB-1014

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Application examples recommended by NEC Corporation.

Standard: Computer, Office equipment, Communication equipment, Test and Measurement equipment, Machine tools, Industrial robots, Audio and Visual equipment, Other consumer products, etc.

Special: Automotive and Transportation equipment, Traffic control systems, Antidisaster systems, Anticrime systems, etc.