

2SD2033A

Transistor, NPN

Features

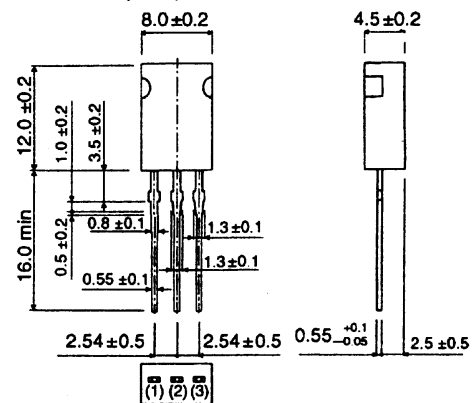
- available in HRT package
- high breakdown voltage:
 $BV_{CEO} = 160\text{ V}$
- high transition frequency (f_T) and low output capacitance (C_{ob})
- wide safe operating area (SOA)

Applications

- low frequency power amplifier

Dimensions (Units : mm)

2SD2033A (HRT)



- (1) Base
(2) Collector
(3) Emitter

Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CBO}	160	V	
Collector-to-emitter voltage	V_{CEO}	160	V	
Emitter-to-base voltage	V_{EBO}	5	V	
Collector current	I_C	1.5	A	Continuous (dc)
		3	A	Single pulse, $P_W = 100\text{ ms}$
Collector dissipation	P_C	1.8	W	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$	

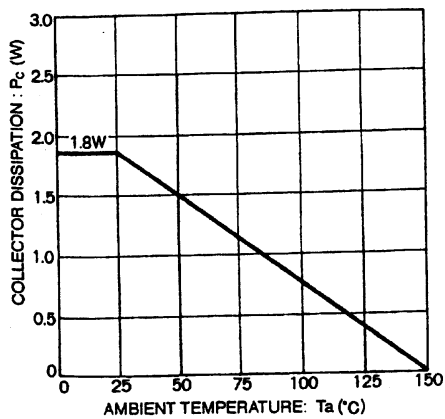
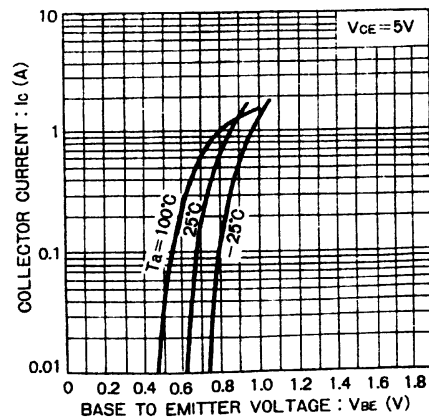
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Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	BV_{CBO}	160			V	$I_C = 50\ \mu\text{A}$
Collector-to-emitter breakdown voltage	BV_{CEO}	160			V	$I_C = 1\ \text{mA}$
Emitter-to-base breakdown voltage	BV_{EBO}	5			V	$I_E = 50\ \mu\text{A}$
Collector cutoff current	I_{CBO}			1.0	μA	$V_{CB} = 120\ \text{V}$
Emitter cutoff current	I_{EBO}			1.0	μA	$V_{EB} = 4\ \text{V}$
DC current gain	h_{FE}	60		200		$V_{CE} = 5\ \text{V}$, $I_C = 0.1\ \text{A}$
Collector-to-emitter saturation voltage	$V_{CE(sat)}$			2.0	V	$I_C/I_B = 1\ \text{A}/0.1\ \text{A}$, single pulse
Base-to-emitter saturation voltage	$V_{BE(sat)}$			1.5	V	$I_C/I_B = 1\ \text{A}/0.1\ \text{A}$, single pulse
Transition frequency	f_T		80		MHz	$V_{CE} = 5\ \text{V}$, $I_E = -0.1\ \text{A}$, $f = 30\ \text{MHz}$
Output capacitance	C_{ob}		20		pF	$V_{CB} = 10\ \text{V}$, $I_E = 0\ \text{A}$, $f = 1\ \text{MHz}$

 h_{FE} rankings

Item	D	E
h_{FE}	60 ~ 120	100 ~ 200

Electrical characteristic curves**Figure 1****Figure 2**

2SD2033A Transistor, NPN 2SD series

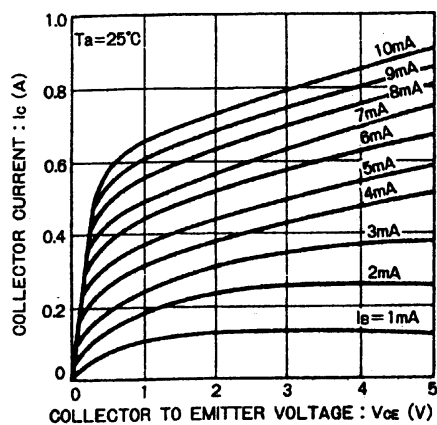


Figure 3

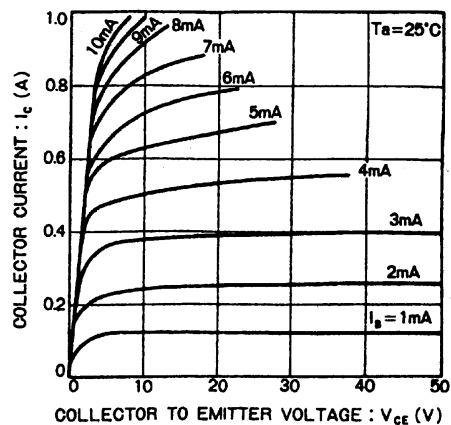


Figure 4

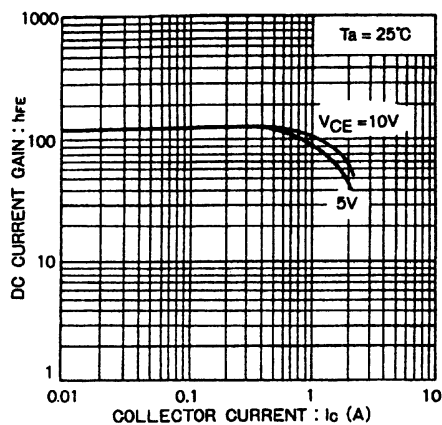


Figure 5

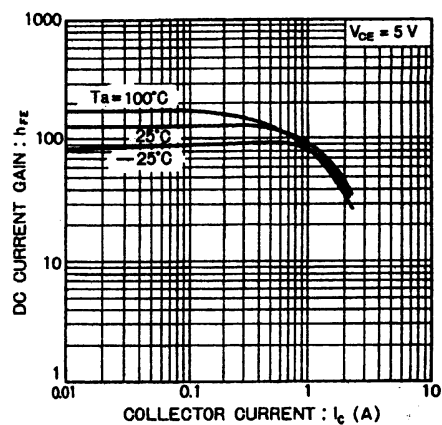


Figure 6

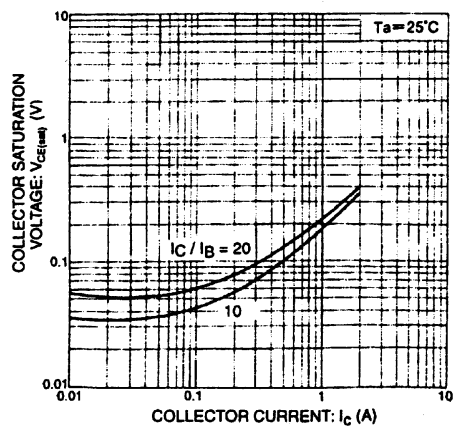


Figure 7

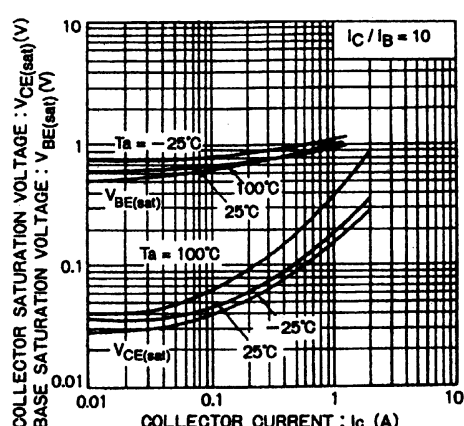


Figure 8

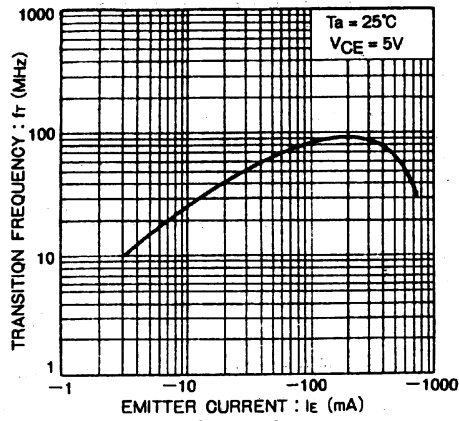


Figure 9

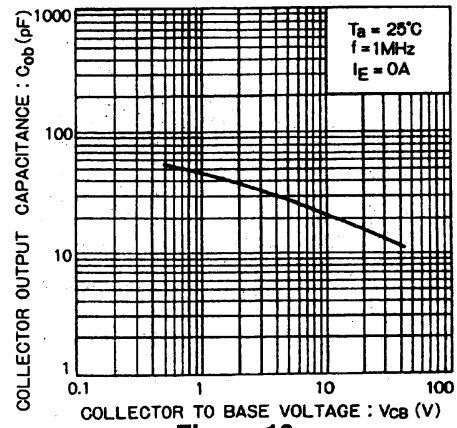


Figure 10

Ordering information

Package	Tape
Code	T114
Basic order quantity	1 000
2SD2033A	★
★ = Standard, ☆ = Semi-standard, * = Special order	

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