

# 2SD2096

# Transistor, NPN

## Features

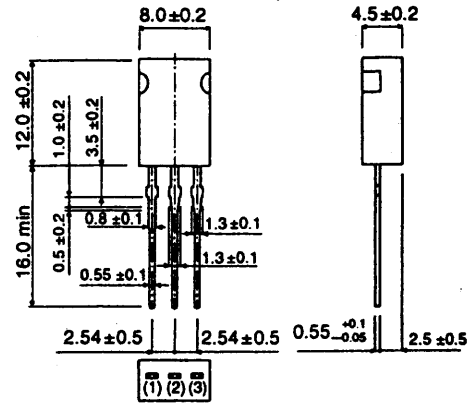
- available in HRT package
- low collector saturation voltage, typically  $V_{CE(sat)} = 0.3 \text{ V}$  at  $I_C/I_B = 2 \text{ A}/0.2 \text{ A}$
- excellent current-to-gain characteristics
- large collector loss:  $P_C = 1.8 \text{ W}$
- wide safe operating area (SOA)

## Applications

- low frequency power amplifier

## Dimensions (Units : mm)

2SD2096 (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	$V_{CBO}$	80	V	
Collector-to-emitter voltage	$V_{CEO}$	60	V	
Emitter-to-base voltage	$V_{EBO}$	5	V	
Collector current	$I_C$	3	A	Continuous (dc)
		6	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 ~ +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	$BV_{CBO}$	80			V	$I_C = 50 \mu\text{A}$
Collector-to-emitter breakdown voltage	$BV_{CEO}$	60			V	$I_C = 1 \text{ mA}$
Emitter-to-base breakdown voltage	$BV_{EBO}$	5			V	$I_E = 50 \mu\text{A}$
Collector cutoff current	$I_{CBO}$			10	$\mu\text{A}$	$V_{CB} = 60 \text{ V}$
Emitter cutoff current	$I_{EBO}$			10	$\mu\text{A}$	$V_{EB} = 4 \text{ V}$
DC current gain	$h_{FE}$	60		320		$V_{CE} = 5 \text{ V}$ , $I_C = 0.5 \text{ A}$ , single pulse
Collector-to-emitter saturation voltage	$V_{CE(sat)}$		0.3	1.0	V	$I_C/I_B = 2 \text{ A}/0.2 \text{ A}$ , single pulse
Base-to-emitter saturation voltage	$V_{BE(sat)}$			1.5	V	$I_C/I_B = 2 \text{ A}/0.2 \text{ A}$ , single pulse
Transition frequency	$f_T$		8		MHz	$V_{CE} = 5 \text{ V}$ , $I_E = -0.5 \text{ A}$ , $f = 5 \text{ MHz}$
Output capacitance	$C_{ob}$		70		pF	$V_{CB} = 10 \text{ V}$ , $I_E = 0 \text{ A}$ , $f = 1 \text{ MHz}$

$h_{FE}$  rankings

Item	D	E	F
$h_{FE}$	60 ~ 120	100 ~ 200	160 ~ 320

Electrical characteristic curves

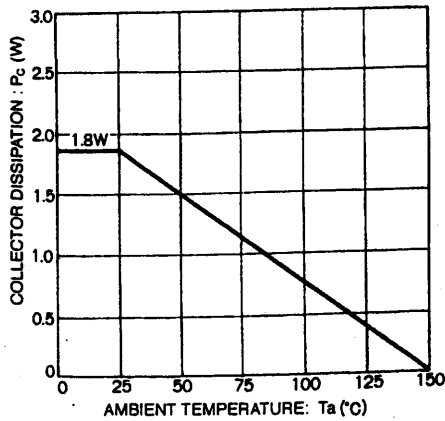


Figure 1

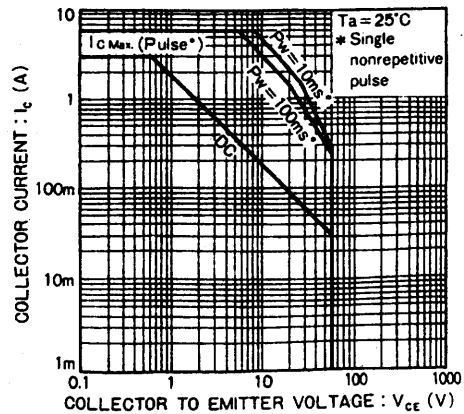


Figure 2

2SD2096 Transistor, NPN, 2SD series

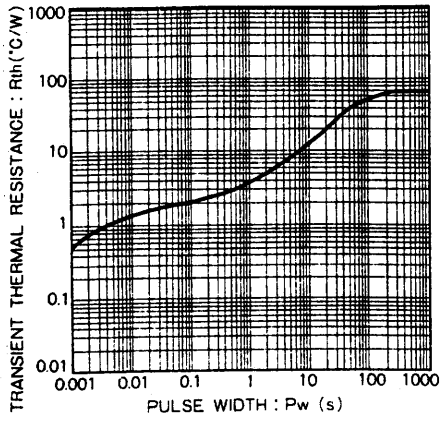


Figure 3

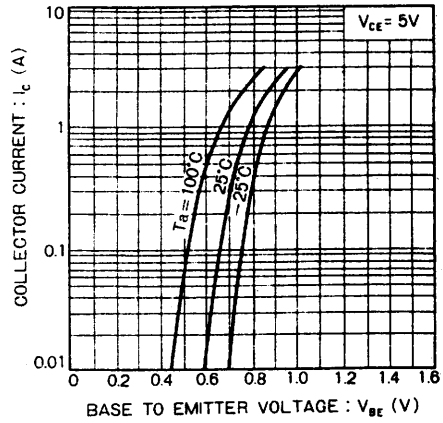


Figure 4

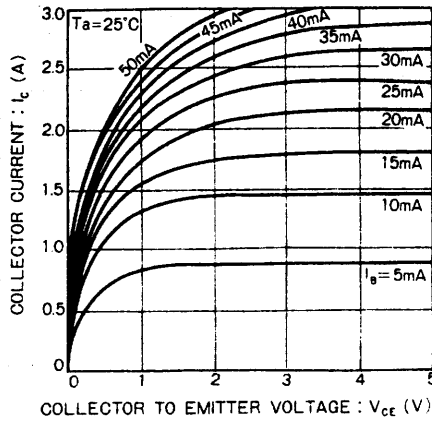


Figure 5

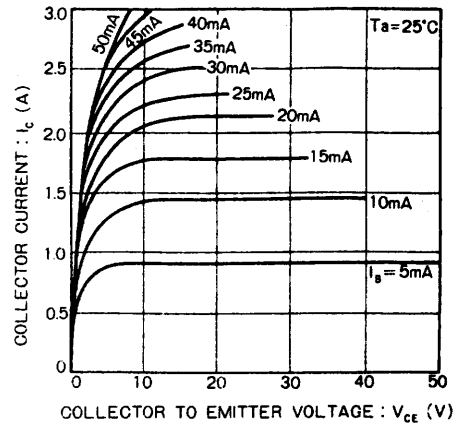


Figure 6

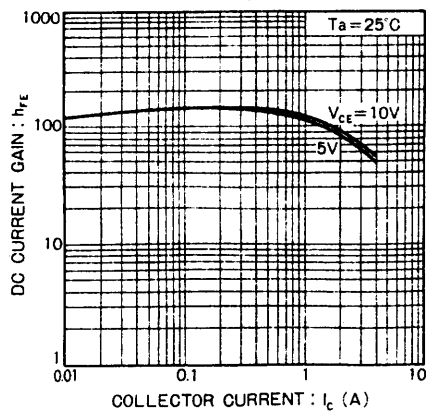


Figure 7

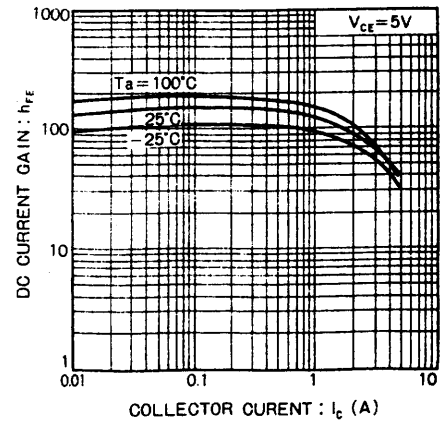


Figure 8

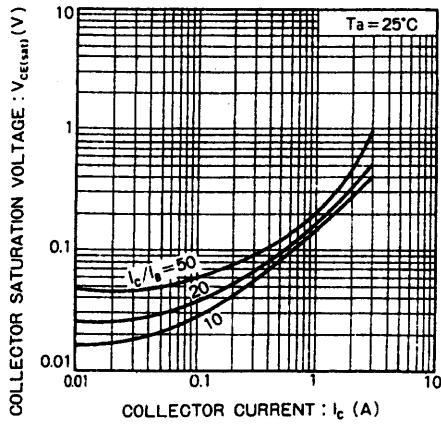


Figure 9

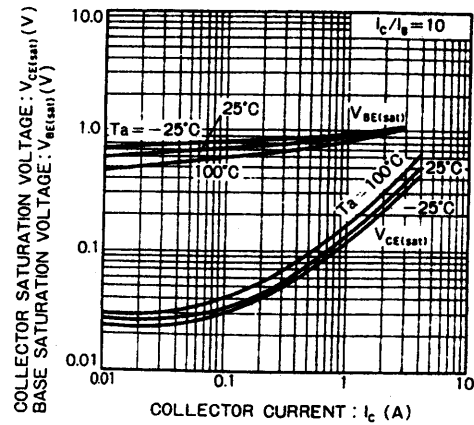


Figure 10

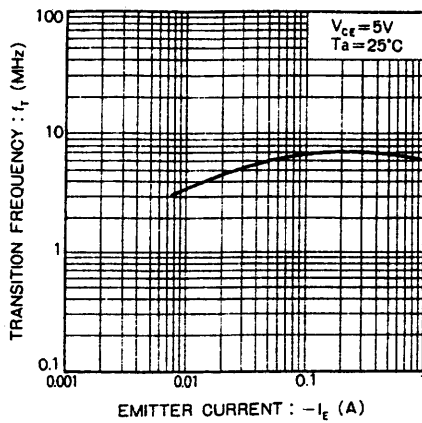


Figure 11

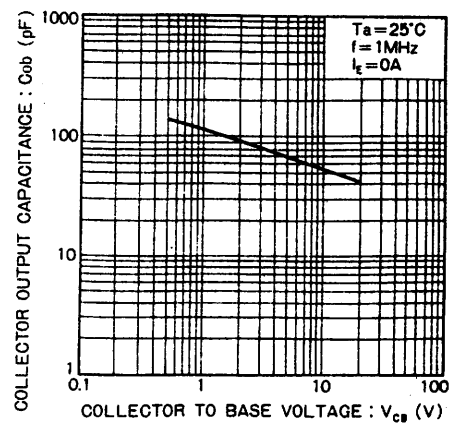


Figure 12

Ordering information

Package	Tape
Code	T114
Basic order quantity	1 000
2SD2096	★
★ = Standard, ☆ = Semi-standard, * = Special order	

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