

# 2SD1864

# Transistor, NPN

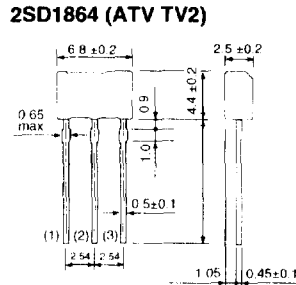
## Features

- available in ATV TV2 package
- low collector saturation voltage, typically  $V_{CE(sat)} = 0.5\text{ V}$  at  $I_C/I_B = 2\text{ A}/0.2\text{ A}$
- complementary pair with 2SB1243

## Applications

- medium power amplifier

## Dimensions (Units : mm)



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

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

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	$V_{CBO}$	60	V	
Collector-to-emitter voltage	$V_{CEO}$	50	V	
Emitter-to-base voltage	$V_{EBO}$	5	V	
Collector current	$I_C$	3	A	Continuous (dc)
		4.5	A	Single pulse, $P_W = 100\text{ ms}$
Collector dissipation	$P_C$	1.0	W	Collector copper foil area must be $1\text{ cm}^2$ . Board must be 1.7 mm thick.
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$	

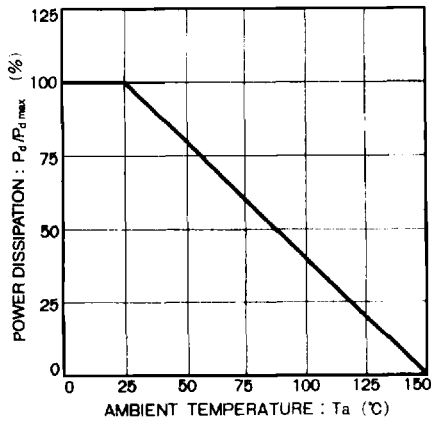
**Electrical characteristics (unless otherwise noted,  $T_a = 25^\circ\text{C}$ )**

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	$BV_{CBO}$	60			V	$I_C = 50 \mu\text{A}$
Collector-to-emitter breakdown voltage	$BV_{CEO}$	50			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	$\mu\text{A}$	$V_{CB} = 40 \text{ V}$
Emitter cutoff current	$I_{EBO}$			1.0	$\mu\text{A}$	$V_{EB} = 4 \text{ V}$
DC current gain	$h_{FE}$	56		390		$V_{CE} = 3 \text{ V}$ , $I_C = 0.5 \text{ A}$ , single pulse
Collector-to-emitter saturation voltage	$V_{CE(sat)}$		0.5	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	$f_T$		90		MHz	$V_{CE} = 5 \text{ V}$ , $I_E = -0.5 \text{ A}$ , $f = 30 \text{ MHz}$ , single pulse
Output capacitance	$C_{ob}$		40		pF	$V_{CB} = 10 \text{ V}$ , $I_E = 0 \text{ A}$ , $f = 1 \text{ MHz}$

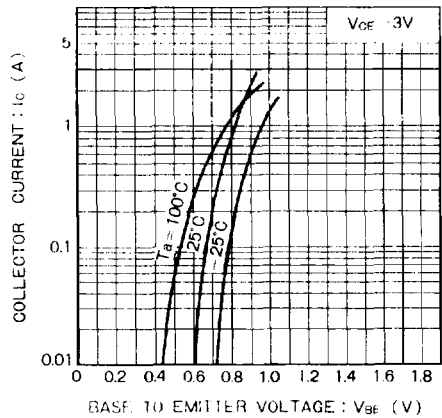
**$h_{FE}$  rankings**

Item	N	P	Q	R
$h_{FE}$	56 ~ 120	82 ~ 180	120 ~ 270	180 ~ 390

**Electrical characteristic curves**



**Figure 1**



**Figure 2**

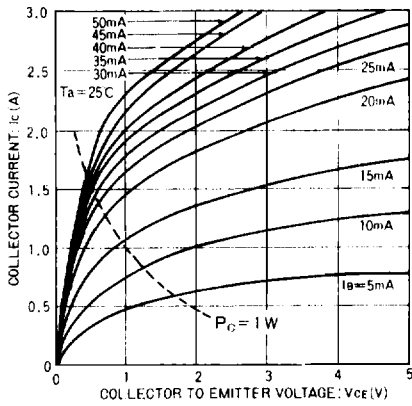


Figure 3

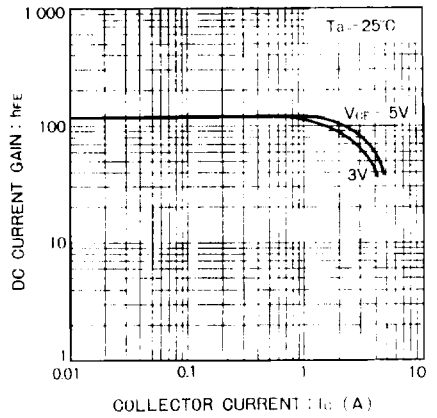


Figure 4

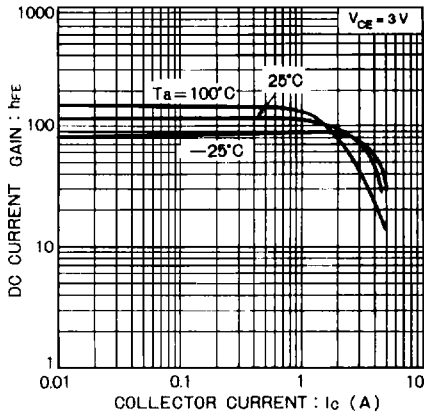


Figure 5

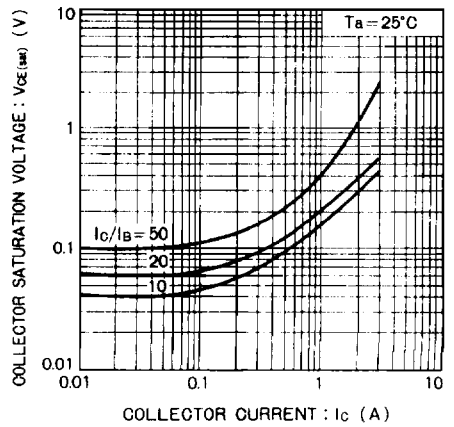


Figure 6

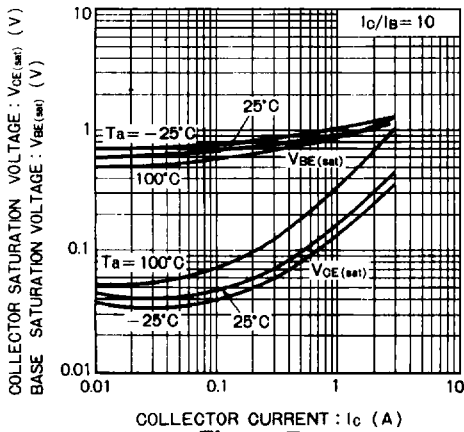


Figure 7

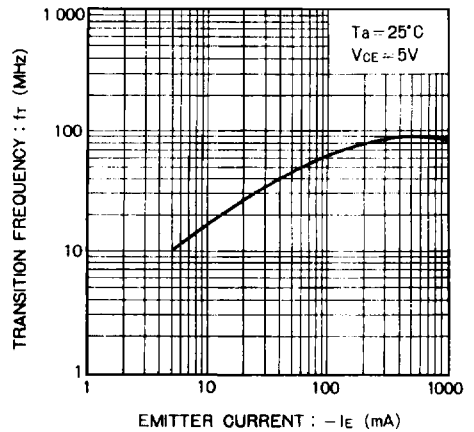
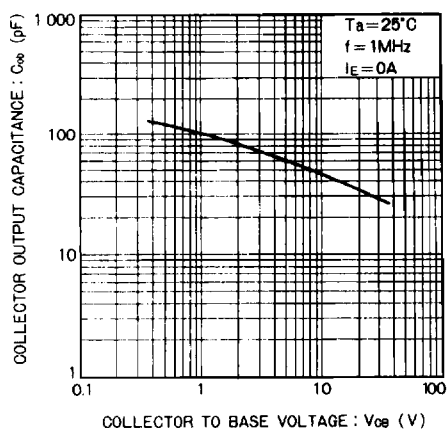


Figure 8



**Figure 9**

### Ordering information

Package	Tape
Code	TV2
Basic order quantity	2 500
2SD1864	★
★ = Standard, ☆ = Semi-standard, * = Special order	