

# For audio amplifier output stages / TV velocity modulation (−160V, −1.5A)

## 2SA1964

### ●Features

- 1) Flat DC current gain characteristics.
- 2) High breakdown voltage. ( $BV_{CEO} = -160V$ )
- 3) High transition frequency, typically  $f_T = 150MHz$
- 4) Wide SOA (safe operating area).
- 5) Complements the 2SC5248.

### ●Packaging specifications and hFE

Type	2SA1964
Package	TO-220FP
hFE	DE
Code	—
Basic ordering unit (pieces)	500

### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	−160	V
Collector-emitter voltage	$V_{CEO}$	−160	V
Emitter-base voltage	$V_{EBO}$	−5	V
Collector current	$I_C$	−1.5	A
Collector power dissipation	$P_C$	2	W
		20	W (Tc=25°C)
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	−55~+150	°C

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	$BV_{CEO}$	−160	—	—	V	$I_C = -1mA$
Collector-base breakdown voltage	$BV_{CBO}$	−160	—	—	V	$I_C = -50 \mu A$
Emitter-base breakdown voltage	$BV_{EBO}$	−5	—	—	V	$I_E = -50 \mu A$
Collector cutoff current	$I_{CBO}$	—	—	−1	$\mu A$	$V_{CB} = -160V$
Emitter cutoff current	$I_{EBO}$	—	—	−1	$\mu A$	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	−1	V	$I_C/I_E = -1A/-0.1A$
DC current transfer ratio	hFE	60	—	200	—	$V_{CE} = -5V, I_C = -0.1A$
Transition frequency	$f_T$	—	150	—	MHz	$V_{CE} = -10V, I_E = -0.2A, f = 100MHz$
Output capacitance	$C_{ob}$	—	35	—	pF	$V_{CB} = -10V, I_E = 0A, f = 1MHz$

(SPEC-A315)

# For audio amplifier output stages / TV velocity modulation (160V, 1.5A)

## 2SC5248

### ●Features

- 1) Flat DC current gain characteristics.
- 2) High breakdown voltage. ( $BV_{CEO} = 160V$ )
- 3) High transition frequency, typically  $f_T = 150MHz$
- 4) Wide SOA (safe operating area).
- 5) Complements the 2SA1964.

### ●Packaging specifications and hFE

Type	2SC5248
Package	TO-220FP
hFE	DE
Code	—
Basic ordering unit (pieces)	500

### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	160	V
Collector-emitter voltage	$V_{CEO}$	160	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	1.5	A
Collector power dissipation	$P_C$	2	W
		20	W (Tc=25°C)
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	−55~+150	°C

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	$BV_{CEO}$	160	—	—	V	$I_C = 1mA$
Collector-base breakdown voltage	$BV_{CBO}$	160	—	—	V	$I_C = 50 \mu A$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E = 50 \mu A$
Collector cutoff current	$I_{CBO}$	—	—	1	$\mu A$	$V_{CB} = 160V$
Emitter cutoff current	$I_{EBO}$	—	—	1	$\mu A$	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	1	V	$I_C/I_E = 1A/0.1A$
DC current transfer ratio	hFE	60	—	200	—	$V_{CE} = 5V, I_C = 0.1A$
Transition frequency	$f_T$	—	150	—	MHz	$V_{CE} = 10V, I_E = 0.2A, f = 100MHz$
Output capacitance	$C_{ob}$	—	20	—	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$

(SPEC-C315)