

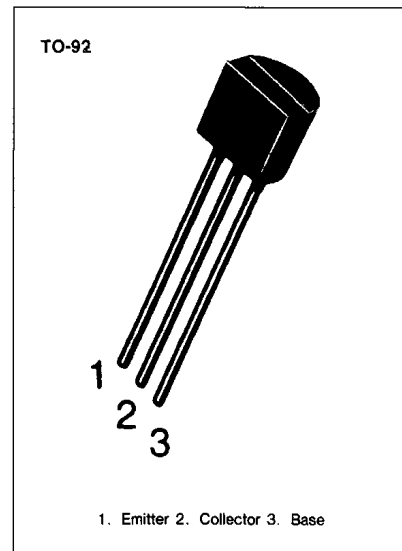
# Transistors

## 2SD1616A

### AUDIO FREQUENCY POWER AMPLIFIER MEDIUM SPEED SWITCHING

#### ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CB0}$	120	V
Collector-Emitter Voltage	$V_{CEO}$	60	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current (DC)	$I_C$	1	A
* Collector Current (Pulse)	$I_C$	2	A
Collector Dissipation	$P_C$	0.75	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55~150	$^\circ\text{C}$



\*  $PW \leq 10\text{ms}$ , Duty Cycle  $< 50\%$

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

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = 60\text{V}$ , $I_E = 0$			100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 6\text{V}$ , $I_C = 0$			100	nA
* DC Current Gain	$h_{FE1}$		135		400	
	$h_{FE2}$	$V_{CE} = 2\text{V}$ , $I_C = 1\text{A}$	81			
** Base Emitter On Voltage	$V_{BE}(\text{on})$	$V_{CE} = 2\text{V}$ , $I_C = 50\text{mA}$	600	640	700	mV
* Collector Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C = 1\text{A}$ , $I_B = 50\text{mA}$		0.15	0.3	V
* Base Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C = 1\text{A}$ , $I_B = 50\text{mA}$		0.9	1.2	V
Output Capacitance	$C_{ob}$	$V_{CE} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$		19		pF
Current Gain Bandwidth Product	$f_T$	$V_{CE} = 2\text{V}$ , $I_C = 100\text{mA}$	100	160		MHz
Turn On Time	$t_{on}$	$V_{CC} = 10\text{V}$ , $I_C = 100\text{mA}$		0.07		$\mu\text{s}$
Storage Time	$t_G$	$I_{B1} = -I_{B2} = 10\text{mA}$		0.95		$\mu\text{s}$
Fall Time	$t_f$	$V_{BE}(\text{off}) = -2 \sim -3\text{V}$		0.07		$\mu\text{s}$

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

#### $h_{FE}(1)$ CLASSIFICATION

Classification	Y	G	L
$h_{FE}(1)$	135-270	200-400	300-600

