

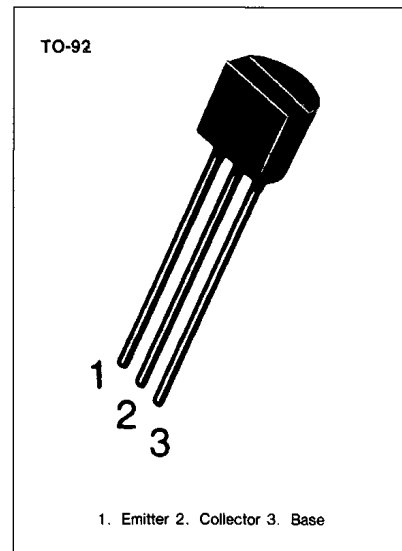
Transistors

2SD1616

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}	60	V
Collector-Emitter Voltage	V_{CE0}	50	V
Emitter-Base Voltage	V_{EB0}	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_{EB0}	$V_{EB} = 6\text{V}$, $I_C = 0$			100	nA
* DC Current Gain	h_{FE1}	$V_{CE} = 2\text{V}$, $I_C = 100\text{mA}$	135		600	
	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		μs
Storage Time	t_G	$I_{B1} = -I_{B2} = 10\text{mA}$		0.95		μs
Fall Time	t_f	$V_{BE}(\text{off}) = -2 \sim -3\text{V}$		0.07		μs

* 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

