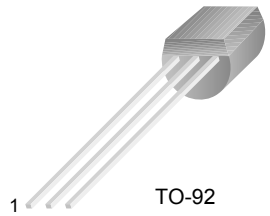
FAIRCHILD SEMICONDUCTOR®

November 2007

KSD1616/1616A

Audio Frequency Power Amplifier & Medium Speed Switching

- Complement to KSB1116/1116A



TO-92

1. Emitter 2. Collector 3. Base

Absolute Maximum Ratings T_a=25°C unless otherwise noted

Symbol	Parameter		Ratings	Units
V_{CBO}	Collector-Base Voltage	: KSD1616 : KSD1616A	60 120	V V
V_{CEO}	Collector-Emitter Voltage	: KSD1616 : KSD1616A	50 60	V V
V_{EBO}	Emitter-Base Voltage		6	V
I_C	Collector Current (DC)		1	A
I_{CP}	* Collector Current (Pulse)		2	A
P_C	Collector Power Dissipation		0.75	W
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		-55 ~ 150	°C

* PW≤10ms, Duty Cycle < 50%

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
I_{CBO}	Collector Cut-off Current	V_{CB}=60V, I_E=0			100	nA
I_{EBO}	Emitter Cut-off Current	V_{EB}=6V, I_C=0			100	nA
h_{FE1} h_{FE2}	DC Current Gain : KSD1616 : KSD1616A	V_{CE}=2V, I_C=100mA V_{CE}=2V, I_C=1A	135 135 81		600 400	
V_{BE} (on)	* Base-Emitter On Voltage	V_{CE}=2V, I_C=50mA	600	640	700	mV
V_{CE} (sat)	* Collector-Emitter Saturation Voltage	I_C=1A, I_B=50mA		0.15	0.3	V
V_{BE} (sat)	* Base-Emitter Saturation Voltage	I_C=1A, I_B=50mA		0.9	1.2	V
C_{ob}	Output Capacitance	V_{CE}=10V, I_E=0, f=1MHz		19		pF
f_T	Current Gain Bandwidth Product	V_{CE}=2V, I_C=100mA	100	160		MHz
t_{ON}	Turn On Time	V_{CC}=10V, I_C=100mA I_{B1}= -I_{B2}=10mA V_{BE} (off) = -2~-3V		0.07		µs
t_{STG}	Storage Time			0.95		µs
t_F	Fall Time			0.07		µs

* Pulse Test: PW<350µs, Duty Cycle≤2% Pulsed

h_{FE1} Classification

Classification	Y	G	L
h_{FE1}	135 ~ 270	200 ~ 400	300 ~ 600

Typical Characteristics

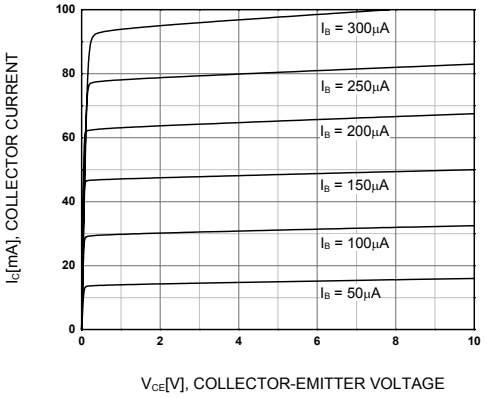


Figure 1. Static Characteristic

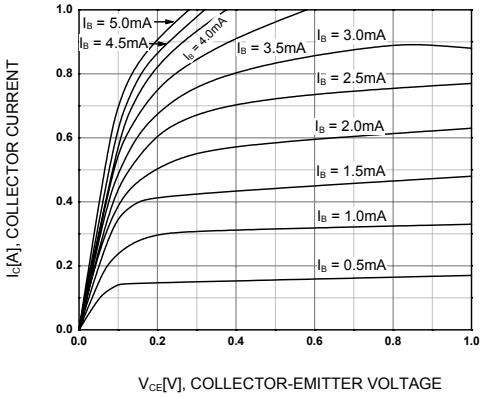


Figure 2. Static Characteristic

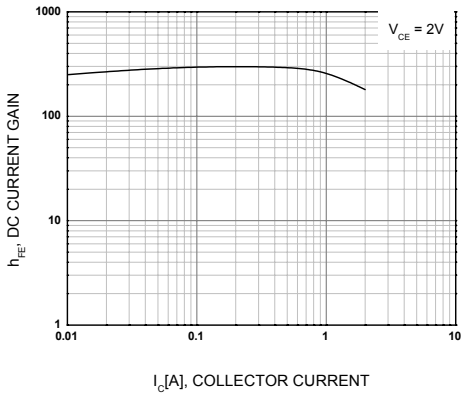


Figure 3. DC current Gain

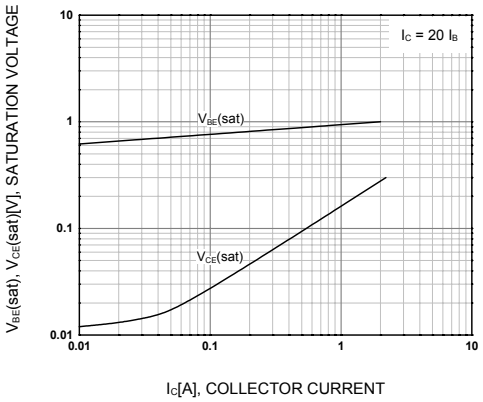


Figure 4. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

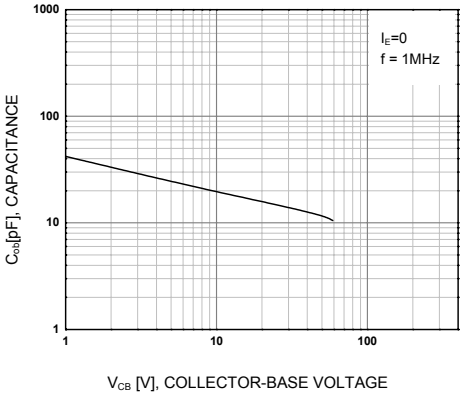


Figure 5. Collector Output Capacitance

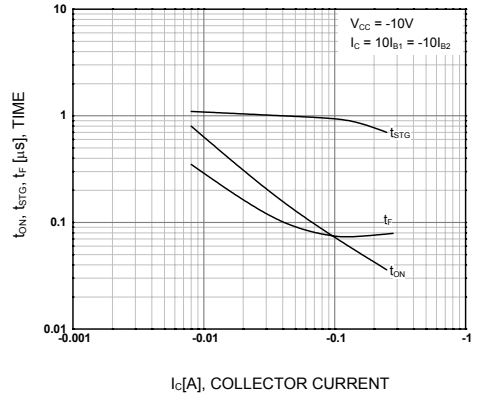


Figure 6. Switching Time

Typical Characteristics(Continued)

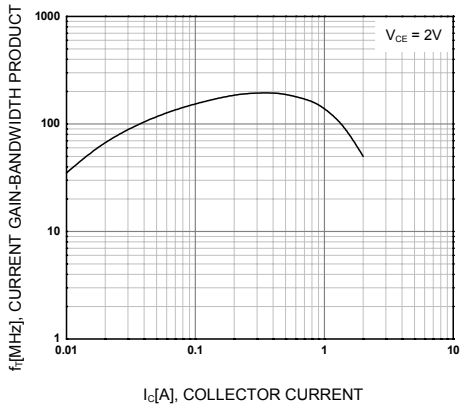


Figure 7. Current Gain Bandwidth Product

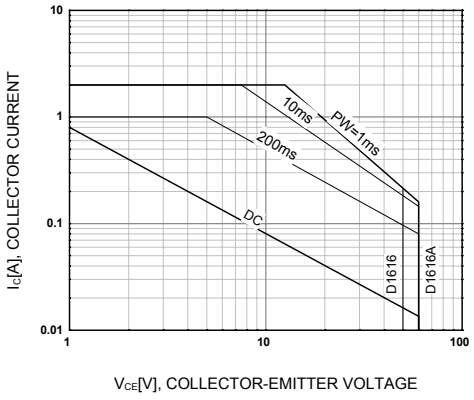


Figure 8. Safe Operating Area

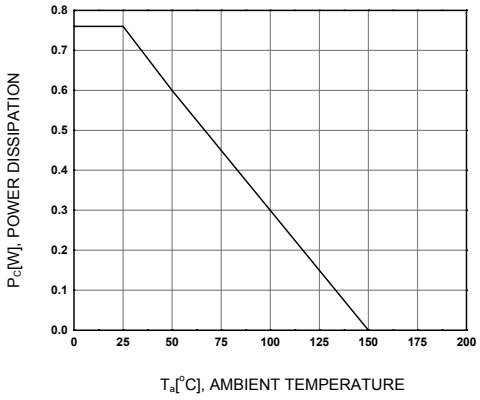


Figure 9. Power Derating

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