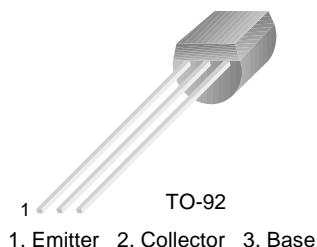


KSD1616/1616A

Audio Frequency Power Amplifier & Medium Speed Switching

- Complement to KSB1116/1116A



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Ratings	Units	
V_{CBO}	Collector-Base Voltage	: KSD1616	60	V
		: KSD1616A	120	V
V_{CEO}	Collector-Emitter Voltage	: KSD1616	50	V
		: KSD1616A	60	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	$^\circ\text{C}$	
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ\text{C}$	

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

Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

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

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

h_{FE1} Classification

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

Typical Characteristics

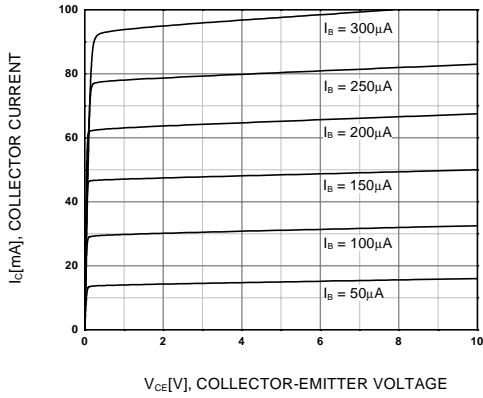


Figure 1. Static Characteristic

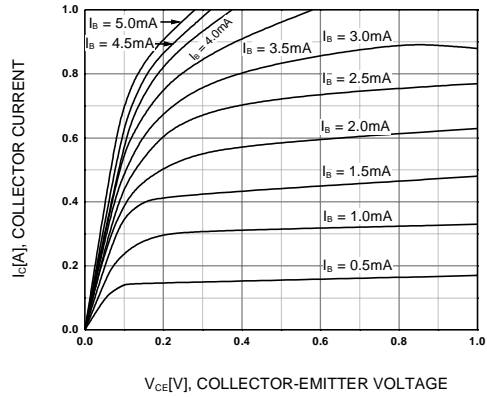


Figure 2. Static Characteristic

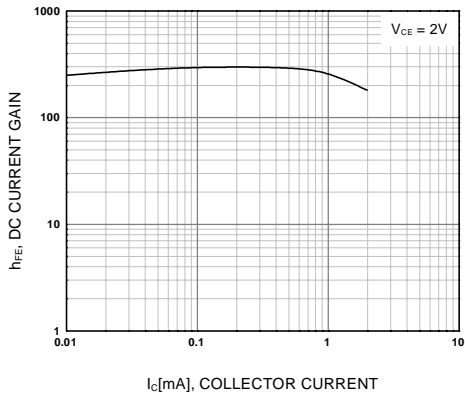


Figure 3. DC current Gain

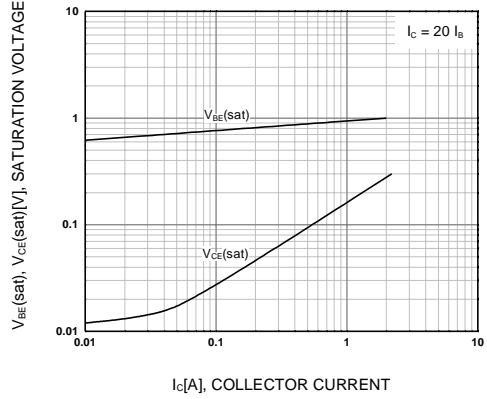


Figure 4. Base-Emitter Saturation Voltage
Collector-Emmitter Saturation Voltage

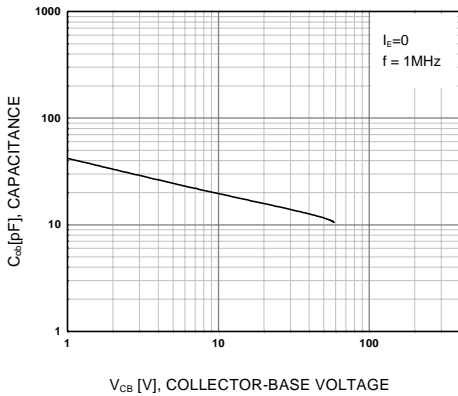


Figure 5. Collector Output Capacitance

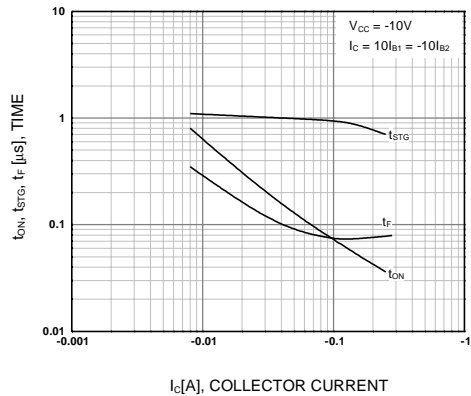


Figure 6. Switching Time

Typical Characteristics (Continued)

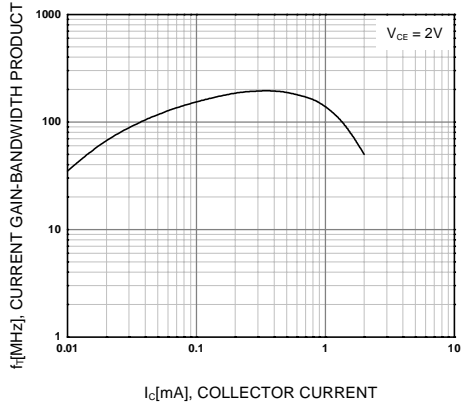


Figure 7. Current Gain Bandwidth Product

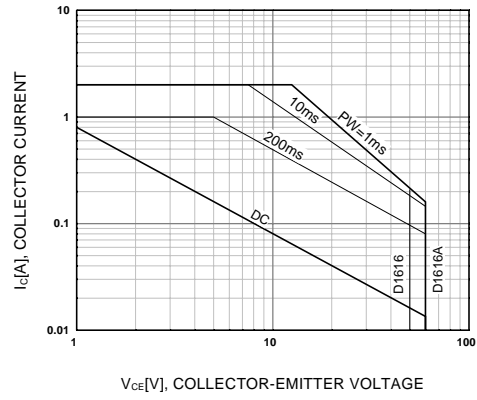


Figure 8. Safe Operating Area

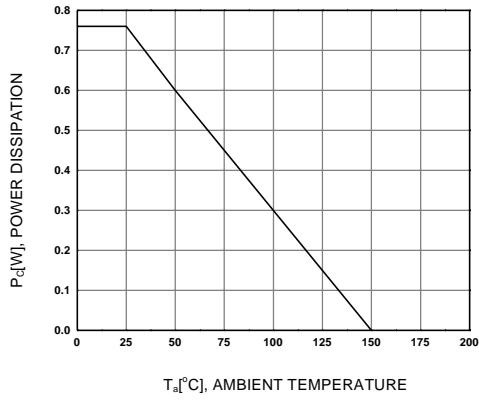


Figure 9. Power Derating

Package Dimensions

TO-92

KSD1616/1616A



Dimensions in Millimeters

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