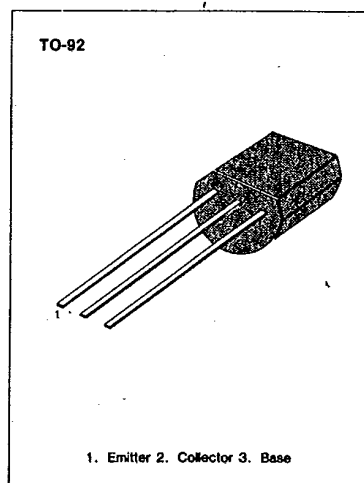


KSD1616/1616A NPN EPITAXIAL SILICON TRANSISTOR**AUDIO FREQUENCY POWER AMPLIFIER
MEDIUM SPEED SWITCHING**

• Complement to KSB1116/1116A

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : KSD1616	V_{CB0}	60	V
: KSD1616A		120	V
Collector-Emitter Voltage : KSD1616	V_{CE0}	50	V
: KSD1616A		60	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 $\leq 50\%$ **ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)**

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 60\text{V}$, $I_E = 0$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 6\text{V}$, $I_C = 0$			100	nA
* DC Current Gain : KSD1616	h_{FE1}	$V_{CE} = 2\text{V}$, $I_C = 100\text{mA}$	135		600	
: KSD1616A			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}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$		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_s	$I_B1 = -I_B2 = 10\text{mA}$		0.95		μs
Fall Time	t_f	$V_{BE}(\text{off}) = -2 \sim -3\text{V}$		0.07		μs

• Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycle $\leq 2\%$ Pulsed **$h_{FE}(1)$ CLASSIFICATION**

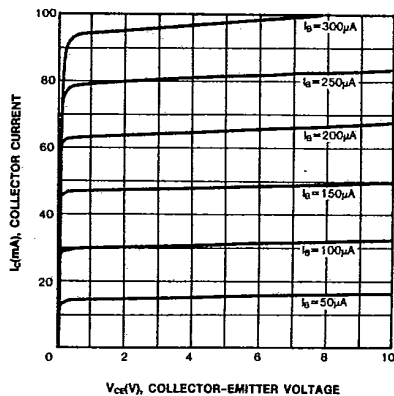
Classification	Y	G	L
$h_{FE}(1)$	135-270	200-400	300-600

KSD1616/1616A

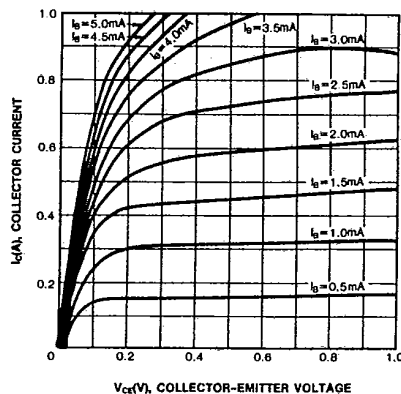
NPN EPITAXIAL SILICON TRANSISTOR

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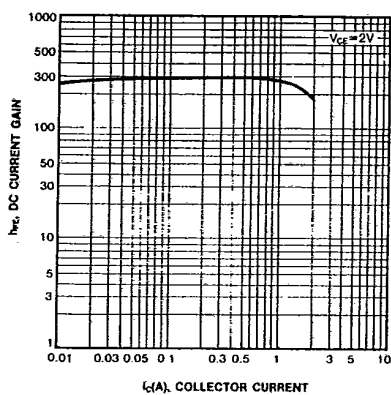
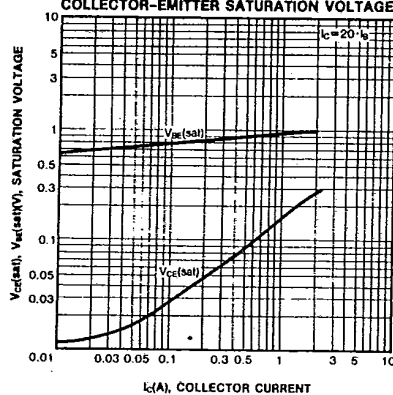
STATIC CHARACTERISTIC



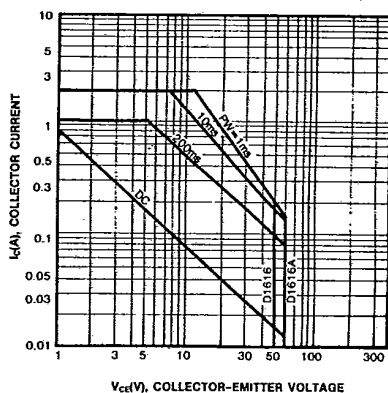
STATIC CHARACTERISTIC



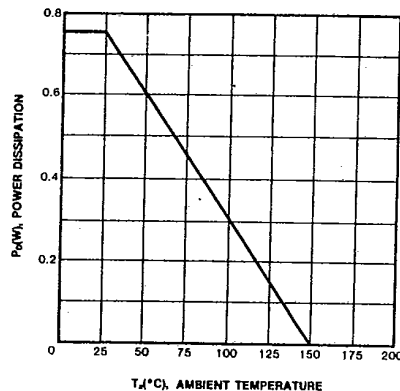
DC CURRENT GAIN

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE

SAFE OPERATING AREA



POWER DERATING



3



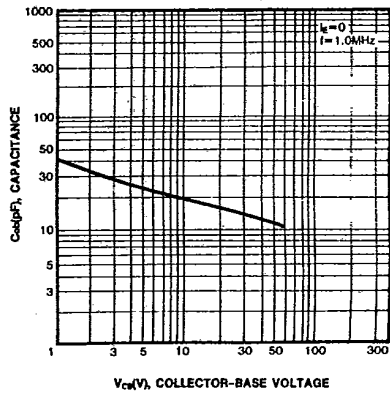
SAMSUNG SEMICONDUCTOR

KSD1616/1616A

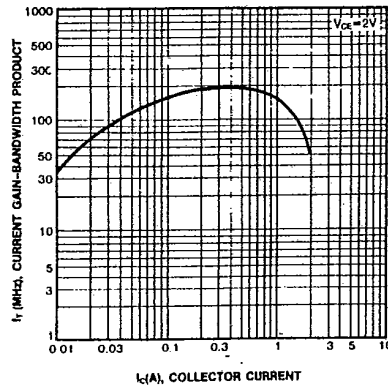
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COLLECTOR OUTPUT CAPACITANCE



CURRENT GAIN-BANDWIDTH PRODUCT



SWITCHING TIME

