

SAMSUNG SEMICONDUCTOR INC

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KSC2002/2003**NPN EPITAXIAL SILICON TRANSISTOR**

T-29-21

AUDIO FREQUENCY AMPLIFIER

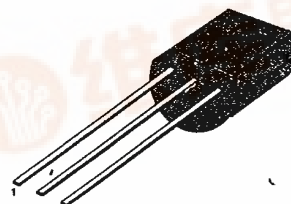
• Complement to KSA953/KSA954

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : KSC2002	V_{CB0}	60	V
: KSC2003		80	V
Collector-Emitter Voltage : KSC2002	V_{CE0}	60	V
: KSC2003		80	V
Emitter-Base Voltage	V_{EB0}	5	V
Collector Current (DC)	I_C	300	mA
• Collector Current (Pulse)	I_C	500	mA
Collector Dissipation	P_C	600	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

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

TO-92



1. Emitter 2. Collector 3. Base

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

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current: KSC2002	I_{CB0}	$V_{CB} = 60\text{V}$, $I_E = 0$			100	nA
: KSC2003		$V_{CB} = 80\text{V}$, $I_E = 0$			100	nA
Emitter Cutoff Current	I_{EB0}	$V_{EB} = 5\text{V}$, $I_C = 0$			100	nA
• DC Current Gain	h_{FE1}	$V_{CE} = 1\text{V}$, $I_C = 50\text{mA}$	90	200	400	
	h_{FE2}	$V_{CE} = 2\text{V}$, $I_C = 300\text{mA}$	30	80		
Base-Emitter On Voltage	$V_{BE}(\text{on})$	$V_{CE} = 6\text{V}$, $I_C = 10\text{mA}$	600	645	700	mV
• Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C = 300\text{mA}$, $I_B = 30\text{mA}$		0.15	0.6	V
• Base Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C = 300\text{mA}$, $I_B = 30\text{mA}$		0.86	1.2	V
Current Gain-Bandwidth Product	f_T	$V_{CE} = 6\text{V}$, $I_E = -10\text{mA}$	50	140		MHz
Output Capacitance	C_{ob}	$V_{CB} = 6\text{V}$, $I_E = 0$, $f = 1\text{MHz}$		7	15	pF

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

Classification	O	Y	G
$h_{FE}(1)$	90-180	135-270	200-400



SAMSUNG SEMICONDUCTOR

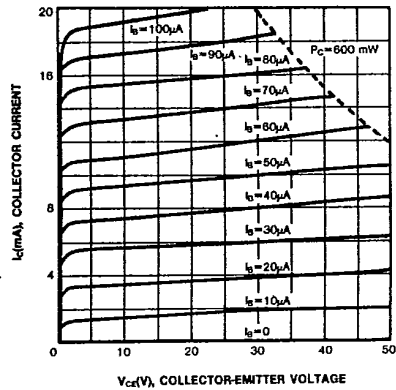
180

KSC2002/2003

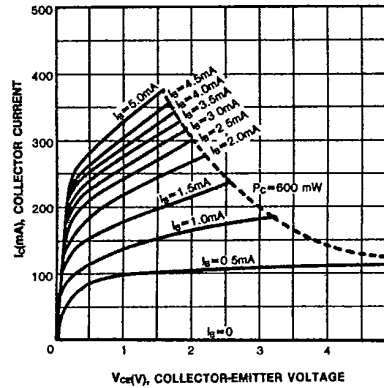
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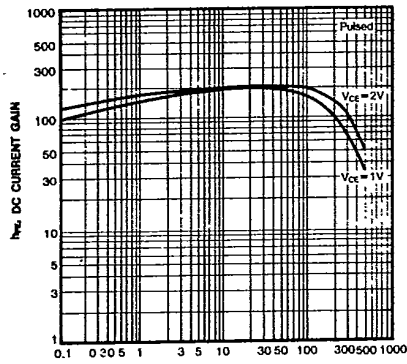
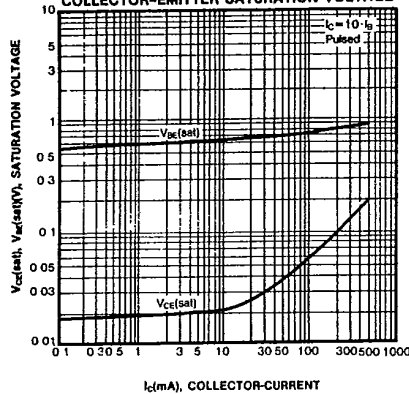
STATIC CHARACTERISTIC



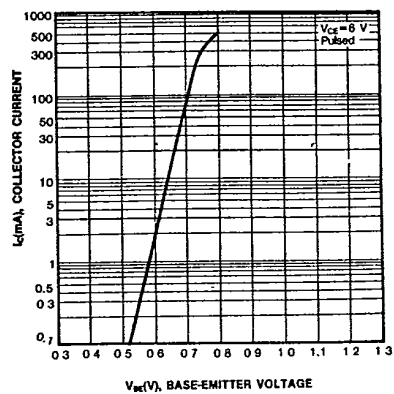
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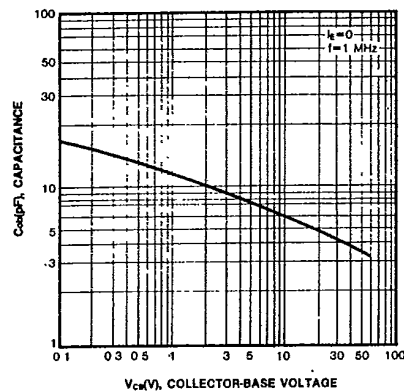
DC CURRENT GAIN

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE

BASE-EMITTER ON VOLTAGE



COLLECTOR OUTPUT CAPACITANCE

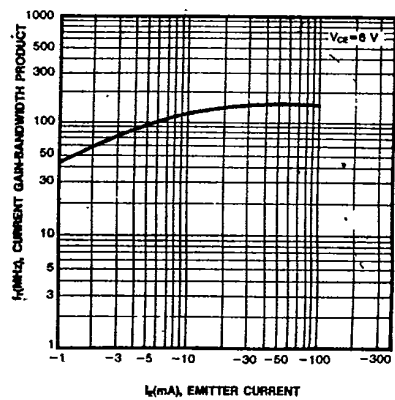


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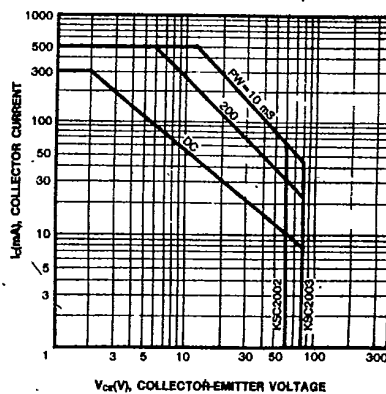


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CURRENT GAIN-BANDWIDTH PRODUCT



SAFE OPERATING AREA



POWER DERATING

