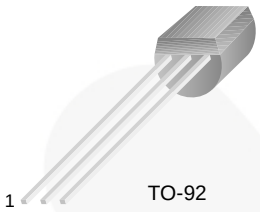
November 2014

KSC945
NPN Epitaxial Silicon Transistor

Features

- Audio Frequency Amplifier and High-Frequency OSC.
- Complimentary to KSA733
- Collector-Base Voltage: V_{CBO} = 60 V
- High Current Gain Bandwidth Product: f_T = 300 MHz (Tyical)
- Suffix “-C” means Center Collector (1. Emitter 2. Collector 3. Base)



TO-92

1. Emitter 2. Base 3. Collector

Ordering Information

Part Number	Top Mark	Package	Packing Method
KSC945YBU	C945	TO-92 3L	Bulk
KSC945YTA	C945	TO-92 3L	Ammo
KSC945GTA	C945	TO-92 3L	Ammo
KSC945CYTA	C945	TO-92 3L	Ammo
KSC945CGBU	C945	TO-92 3L	Bulk
KSC945CGTA	C945	TO-92 3L	Ammo

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	150	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	250	mW
	Derate Above 25°C	2.0	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	500	°C/W

Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100 μA, I_E = 0	60			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	50			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 10 μA, I_C = 0	5			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 40 V, I_E = 0			0.1	μA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 3 V, I_C = 0			0.1	μA
h_{FE}	DC Current Gain	V_{CE} = 6 V, I_C = 1.0 mA	40		700	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 100 mA, I_B = 10 mA		0.15	0.30	V
f_T	Current Gain Bandwidth Product	V_{CE} = 6 V, I_C = 10 mA		300		MHz
C_{ob}	Output Capacitance	V_{CB} = 6 V, I_E = 0, f = 1 MHz		2.5		pF
NF	Noise Figure	V_{CE} = 6 V, I_C = 0.5 mA, f = 1 kHz, R_S = 500 Ω		4.0		dB

h_{FE} Classification

Classification	R	O	Y	G	L
h_{FE}	40 ~ 80	70 ~ 140	120 ~ 240	200 ~ 400	350 ~ 700

Typical Performance Characteristics

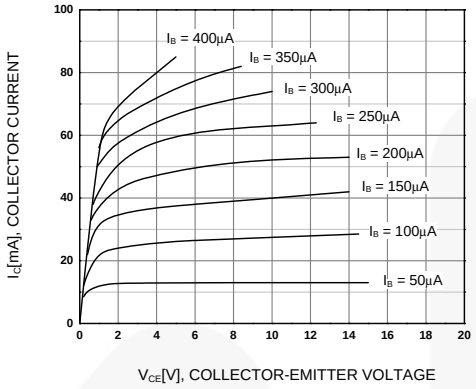


Figure 1. Static Characteristic

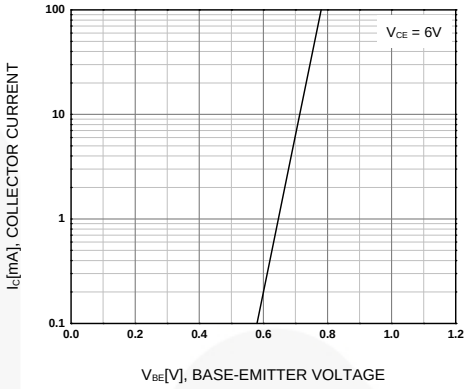


Figure 2. Transfer Characteristic

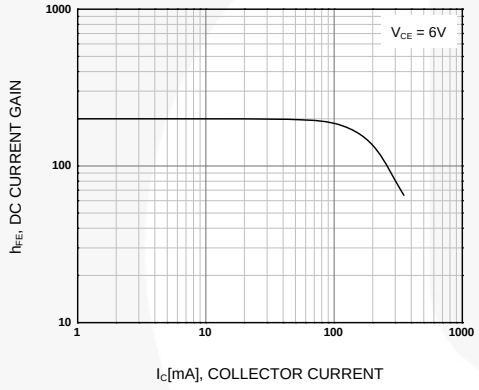


Figure 3. DC Current Gain

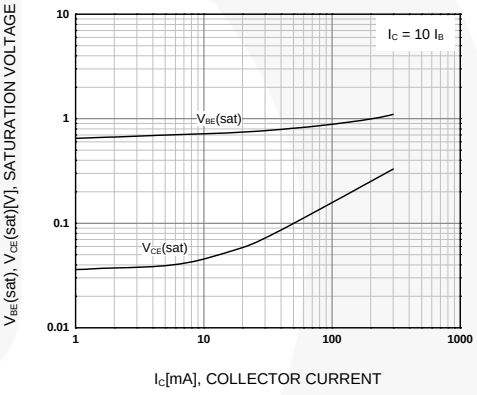


Figure 4. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

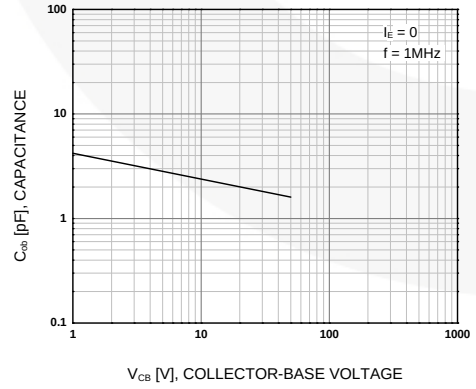


Figure 5. Output Capacitance

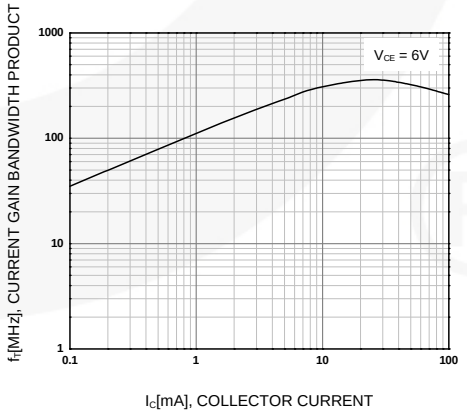
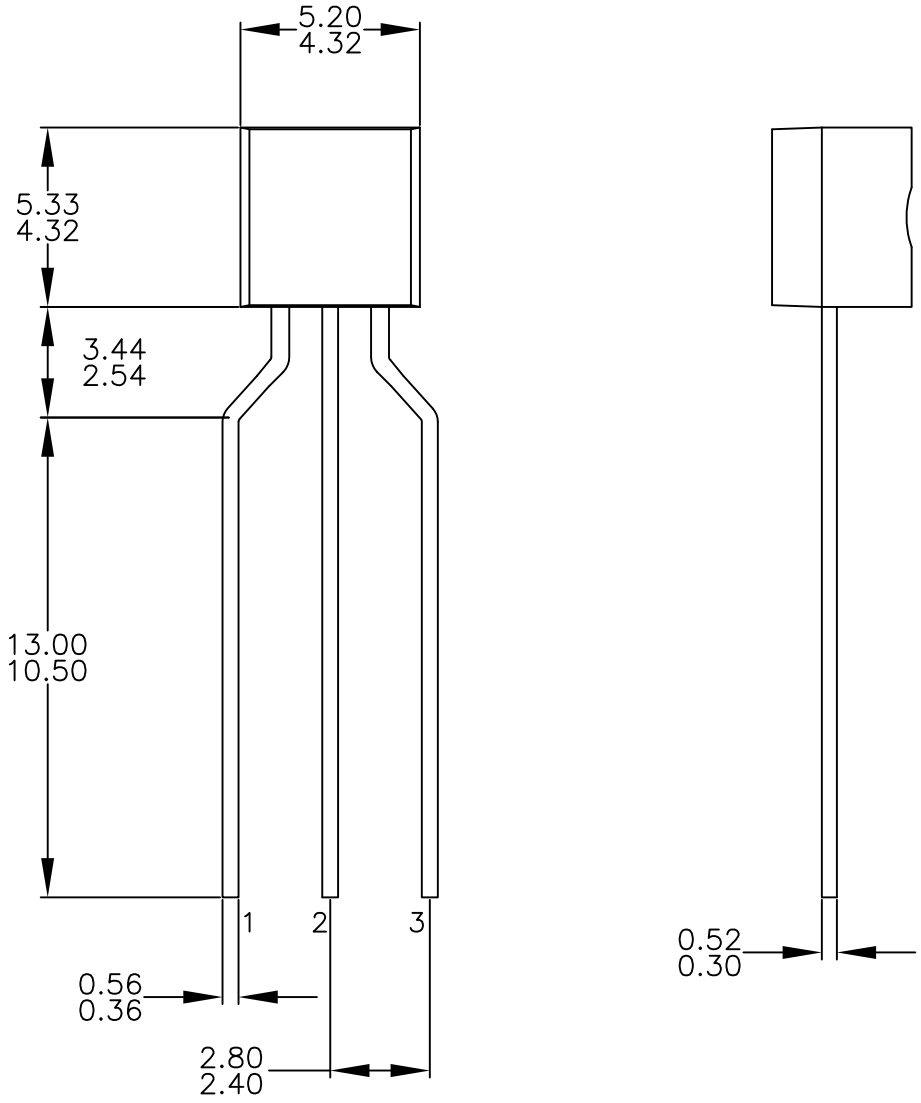
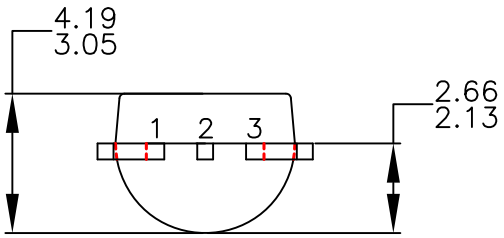


Figure 6. Current Gain Bandwidth Product





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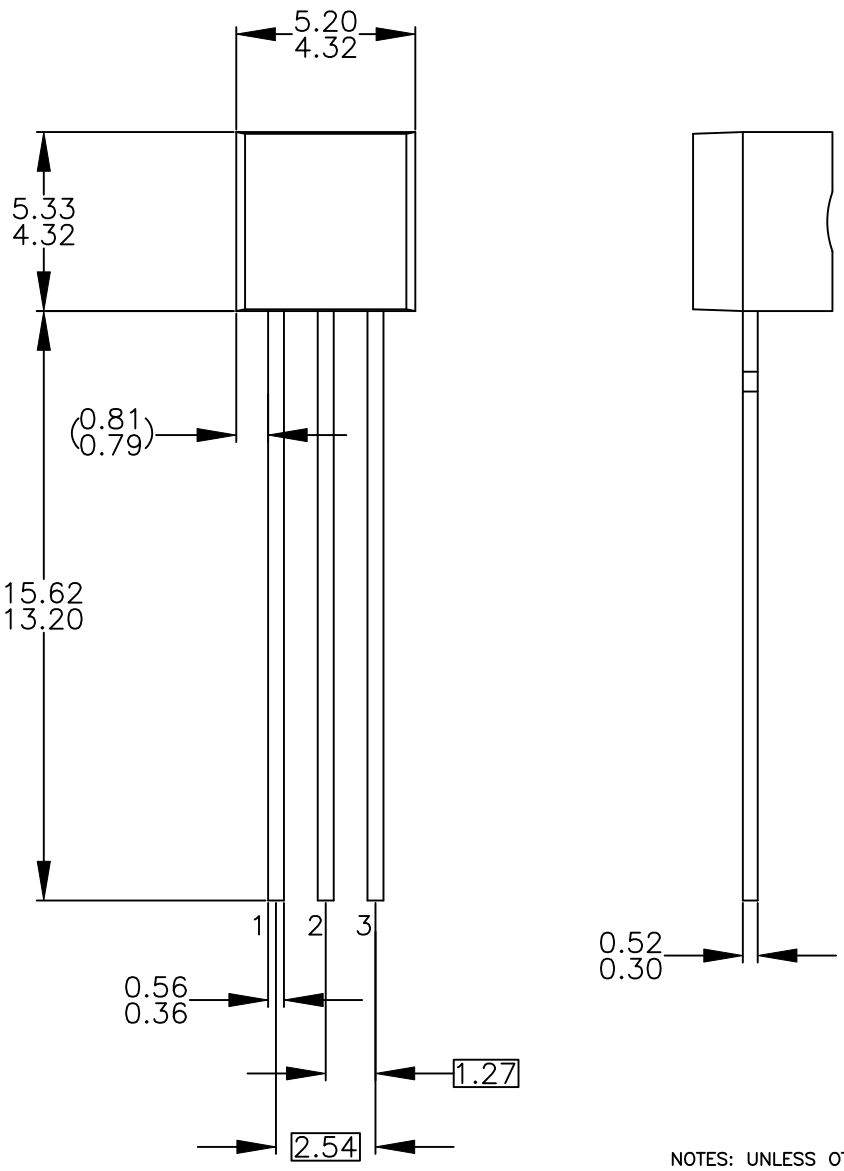
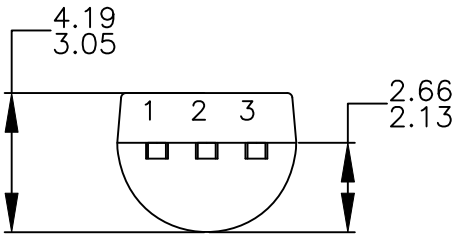
D. DRAWING FILENAME: MKT-ZA03FREV3.
E. FAIRCHILD SEMICONDUCTOR.





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