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October 2015

KSC388
NPN Epitaxial Silicon Transistor

Features

- TV Final Picture IF Amplifier Applications
- G_{PE} = 33 dB (Typical) at f = 45 MHz
- Suffix “-C” means Center Collector (1. Emitter 2. Collector 3. Base)
- Non Suffix “-C” means Side Collector (1. Emitter 2. Base 3. Collector)



Straight Lead
Bulk Packing

Bent Lead
Tape & Reel
Ammo Packing

TO-92
1. Emitter
2. Base
3. Collector

Ordering Information

Part Number	Top Mark	Package	Packing Method
KSC388CYTA	C388	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	30	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	4	V
I_C	Collector Current	50	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

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Thermal Characteristics[1]

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

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	300	mW
	Derate Above 25°C	2.4	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	416	°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 = 10 μA, I_E = 0	30			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 5 mA, I_B = 0	25			V
I_{CBO}	Collector Cut-Off Current	V_{CB} = 30 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} = 12.5 V, I_C = 12.5 mA	20		200	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 15 mA, I_B = 1.5 mA			0.2	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 15 mA, I_B = 1.5 mA			1.5	V
C_{ob}	Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz	0.8		2	pF
$C_{c\cdot rbb'}$	Collector-Base Time Constant	V_{CB} = 10 V, I_C = 1 mA, f = 30 MHz			25	ps
f_T	Current Gain Bandwidth Product	V_{CE} = 12.5 V, I_C = 12.5 mA	300			MHz
G_{PE}	Power Gain	V_{CE} = 12.5 V, I_C = 12.5 mA, f = 45 MHz	28	33	36	dB

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Typical Performance Characteristics

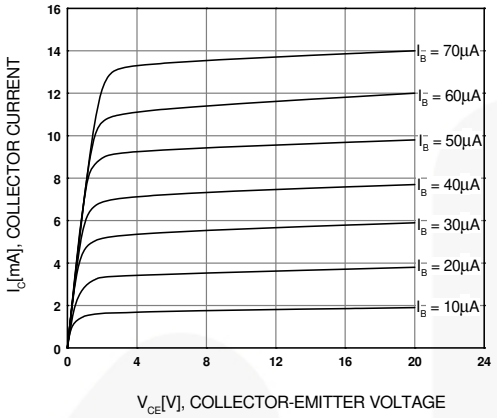


Figure 1. Static Characteristic

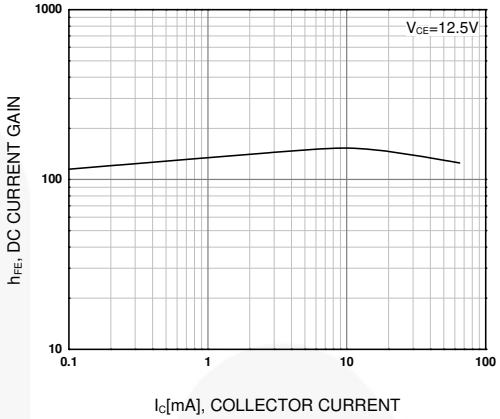


Figure 2. DC Current Gain

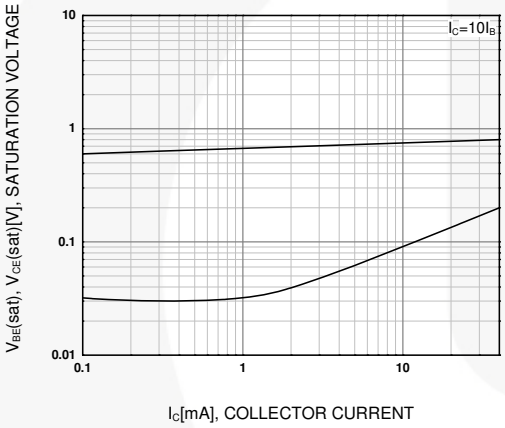


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

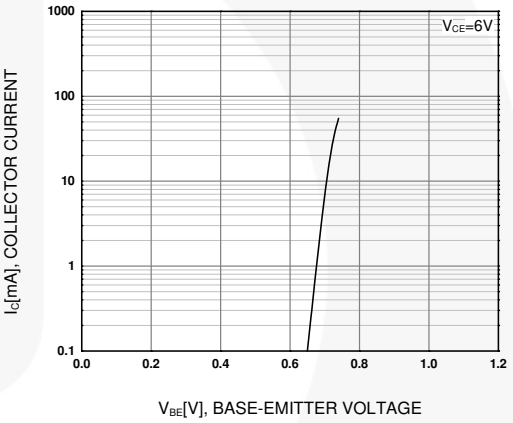


Figure 4. Base-Emitter On Voltage

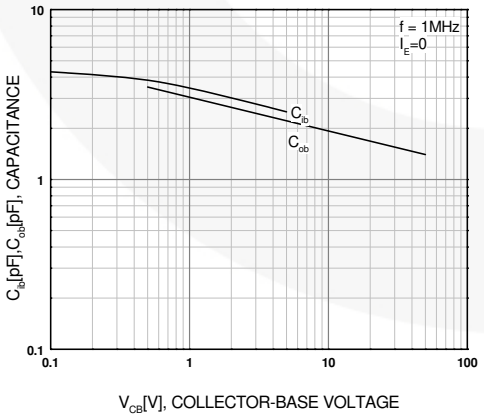


Figure 5. Collector Input Capacitance Collector Output Capacitance

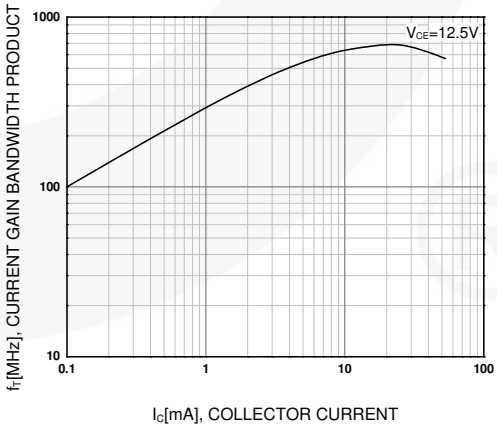
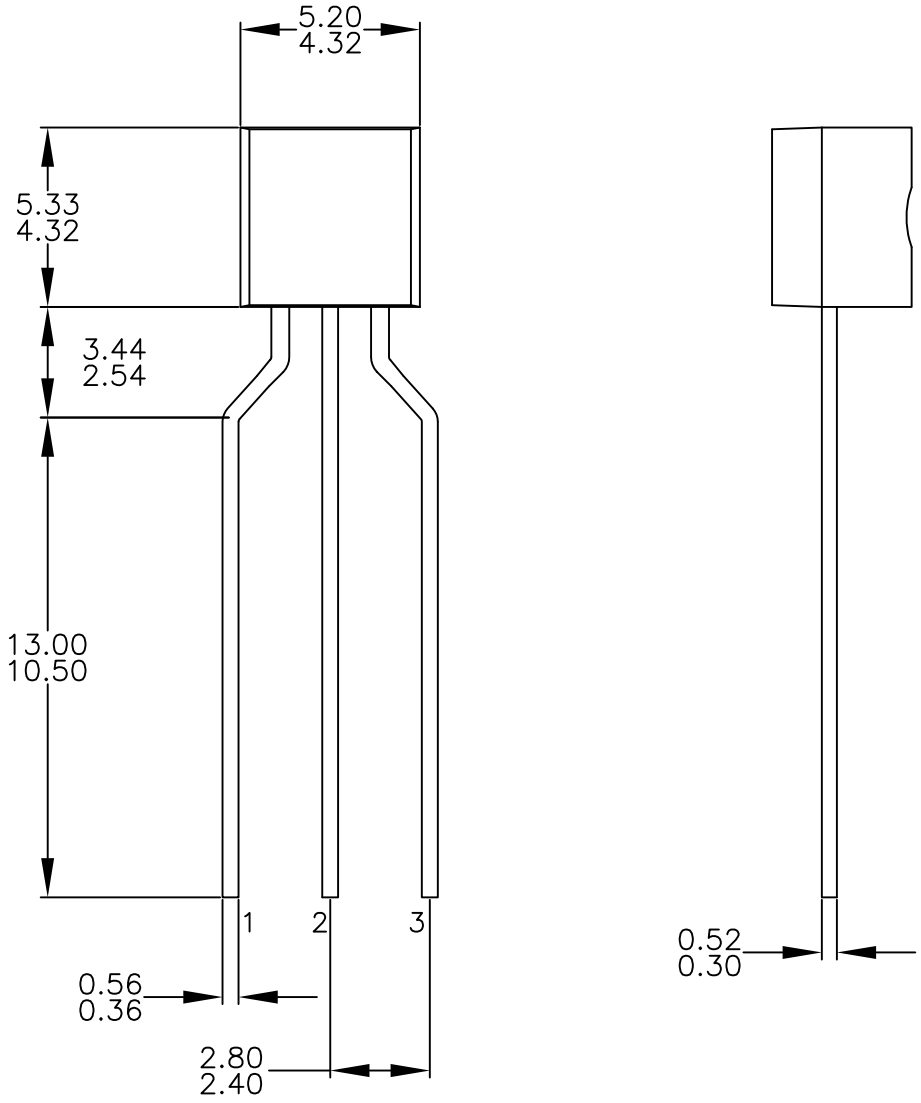
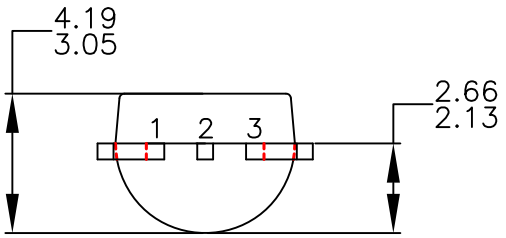


Figure 6. Current Gain Bandwidth Product

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NOTES: UNLESS OTHERWISE SPECIFIED

A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
B. ALL DIMENSIONS ARE IN MILLIMETERS.
C. DRAWING CONFORMS TO ASME Y14.5M-2009.
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