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September 2015

KSA1015

PNP Epitaxial Silicon Transistor

Features

- Low-Frequency Amplifier
- Collector-Base Voltage: $V_{CBO} = -50\text{ V}$
- Complement to KSC1815



Ordering Information

Part Number	Marking	Package	Packing Method
KSA1015GRTA	A1015	TO-92 3L	Ammo
KSA1015YTA	A1015	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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-50	V
V_{CEO}	Collector-Emitter Voltage	-50	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-150	mA
I_B	Base Current	-50	mA
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Characteristics⁽¹⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	400	mW
	Derate Above 25°C	3.2	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	312	$^\circ\text{C}/\text{W}$

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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = -100\ \mu\text{A}$, $I_E = 0$	-50			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = -10\ \text{mA}$, $I_B = 0$	-50			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = -10\ \mu\text{A}$, $I_C = 0$	-5			V
I_{CBO}	Collector Cut-Off Current	$V_{CB} = -50\ \text{V}$, $I_E = 0$			-0.1	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -5\ \text{V}$, $I_C = 0$			-0.1	μA
h_{FE1}	DC Current Gain	$V_{CE} = -6\ \text{V}$, $I_C = -2\ \text{mA}$	70		400	
h_{FE2}	DC Current Gain	$V_{CE} = -6\ \text{V}$, $I_C = -150\ \text{mA}$	25			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -100\ \text{mA}$, $I_B = -10\ \text{mA}$		-0.1	-0.3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -100\ \text{mA}$, $I_B = -10\ \text{mA}$			-1.1	V
f_T	Current Gain Bandwidth Product	$V_{CE} = -10\ \text{V}$, $I_C = -1\ \text{mA}$	80			MHz
C_{ob}	Output Capacitance	$V_{CB} = -10\ \text{V}$, $I_E = 0$, $f = 1\ \text{MHz}$		4	7	pF
NF	Noise Figure	$V_{CE} = -6\ \text{V}$, $I_C = -0.1\ \text{mA}$, $f = 100\ \text{Hz}$, $R_G = 10\ \text{k}\Omega$		0.5	6	dB

 h_{FE} Classification

Classification	O	Y	GR
h_{FE1}	70 ~ 140	120 ~ 240	200 ~ 400

Typical Performance Characteristics

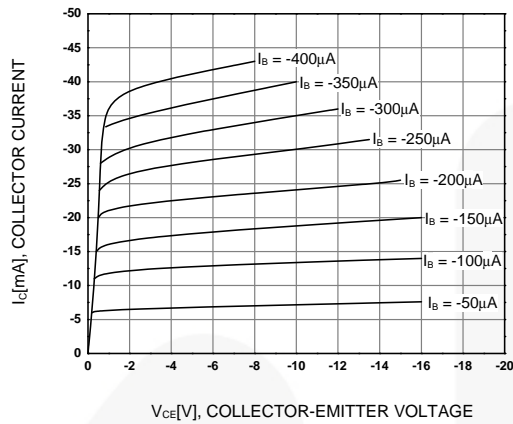


Figure 1. Static Characteristic

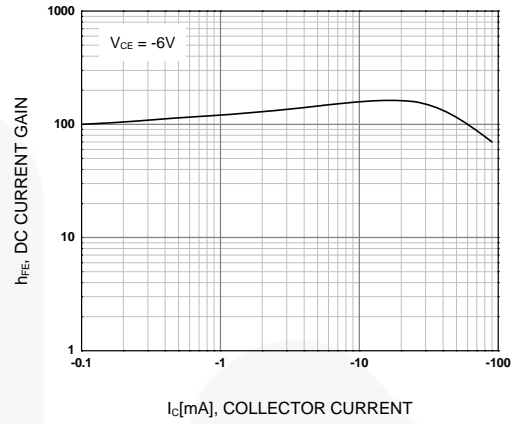


Figure 2. DC Current Gain

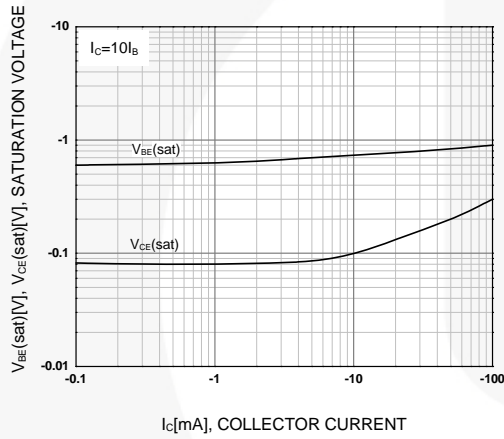


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

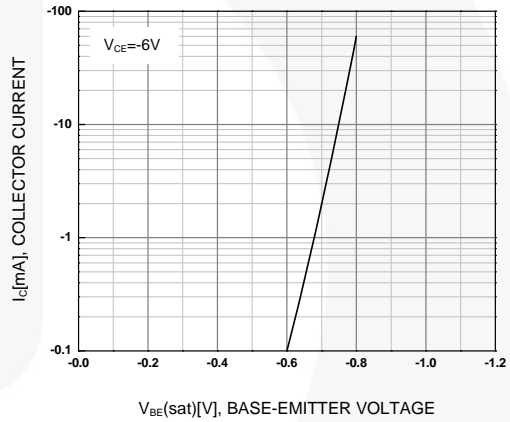


Figure 4. Base-Emitter On Voltage

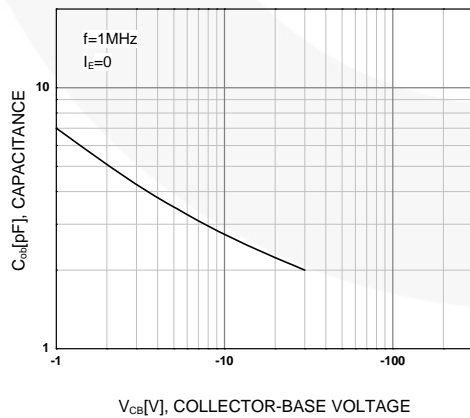


Figure 5. Collector Output Capacitance

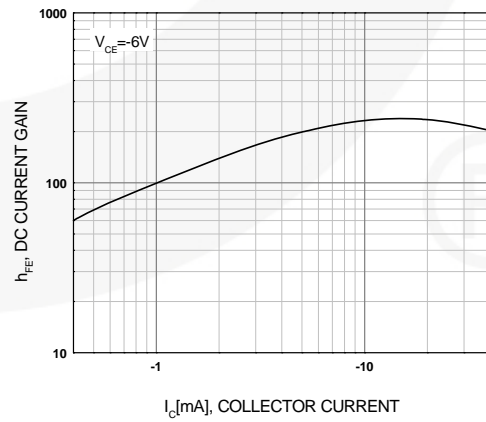
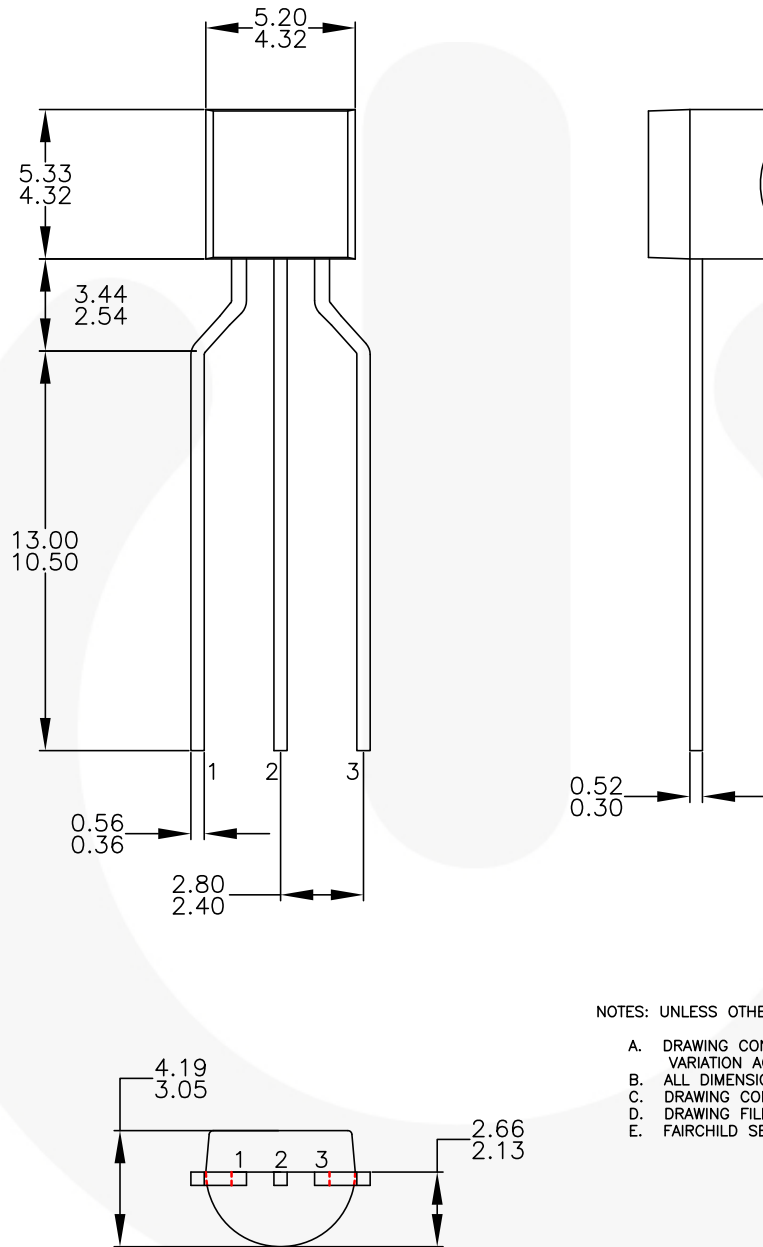


Figure 6. Current Gain Bandwidth Product

Physical Dimensions



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.
- D. DRAWING FILENAME: MKT-ZA03FREV3.
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Figure 7. 3-LEAD, TO-92, MOLDED 0.200 IN LINE SPACING LD FORM



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Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.