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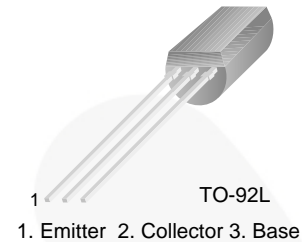
October 2014

# KSA1013

## PNP Epitaxial Silicon Transistor

### Features

- Color TV Audio Output
- Color TV Vertical Deflection Output



### Ordering Information

Part Number	Top Mark	Package	Packing Method
KSA1013YBU	A1013	TO-92 3L	Bulk
KSA1013OBU			Ammo
KSA1013YTA			
KSA1013OTA			

### 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	-160	V
$V_{CEO}$	Collector-Emitter Voltage	-160	V
$V_{EBO}$	Emitter-Base Voltage	-6	V
$I_C$	Collector Current	-1	A
$I_B$	Base Current	-0.5	A
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 to +150	$^\circ\text{C}$

KSA1013 — PNP Epitaxial Silicon Transistor

**Thermal Characteristics<sup>(1)</sup>**

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

Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	900	mW
	Derate Above $T_A = 25^\circ\text{C}$	7.2	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	139	$^\circ\text{C}/\text{W}$

**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**

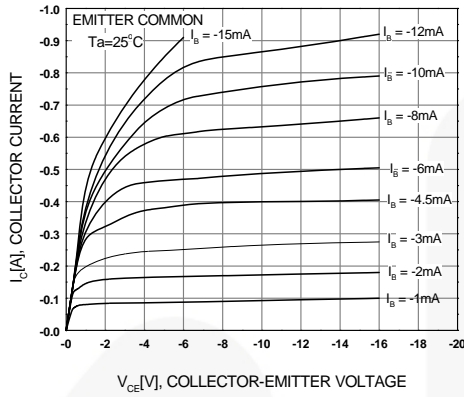
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = -150\text{ V}, I_E = 0$			-1	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = -6\text{ V}, I_C = 0$			-1	$\mu\text{A}$
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -10\text{ mA}, I_B = 0$	-160			V
$h_{FE}$	DC Current Gain	$V_{CE} = -5\text{ V}, I_C = -200\text{ mA}$	60		320	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -500\text{ mA}, I_B = -50\text{ mA}$			-1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -5\text{ V}, I_C = -5\text{ mA}$	-0.45		-0.75	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -5\text{ V}, I_C = -200\text{ mA}$	15	50		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = -10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$			35	pF

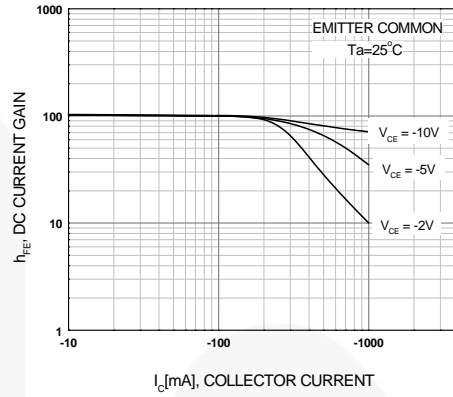
 **$h_{FE}$  Classification**

Classification	R	O	Y
$h_{FE}$	60 ~ 120	100 ~ 200	160 ~ 320

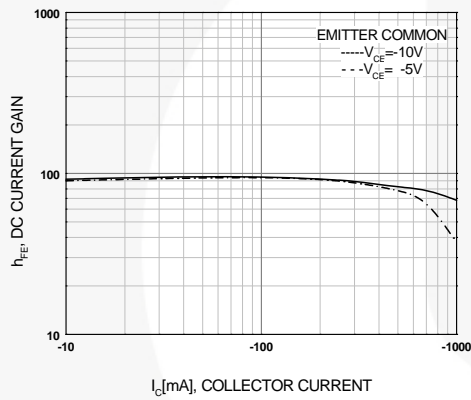
## Typical Performance Characteristics



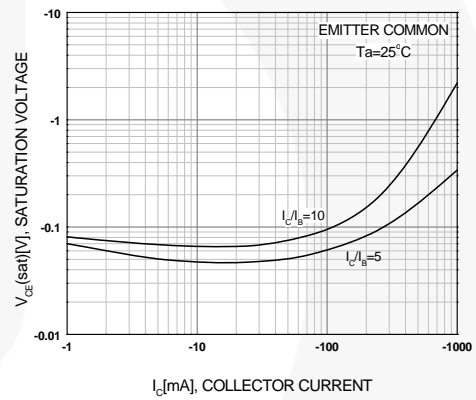
**Figure 1. Static Characteristic**



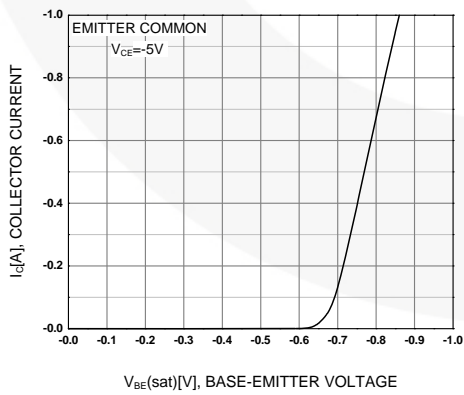
**Figure 2. DC Current Gain**



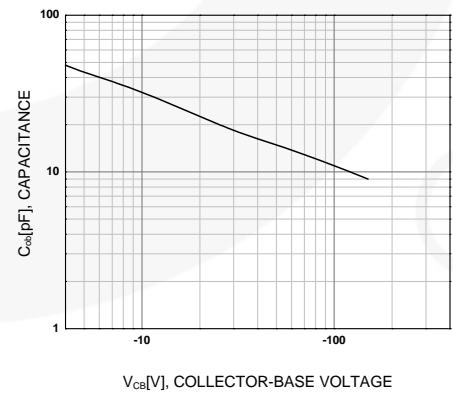
**Figure 3. DC Current Gain**



**Figure 4. Collector-Emitter Saturation Voltage**



**Figure 5. Base-Emitter On Voltage**



**Figure 6. Collector Output Capacitance**

Typical Performance Characteristics (Continued)

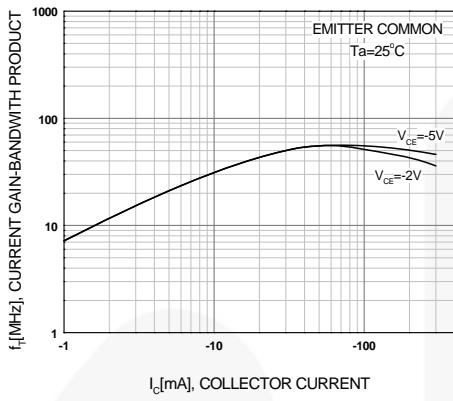


Figure 7. Current Gain Bandwidth Product

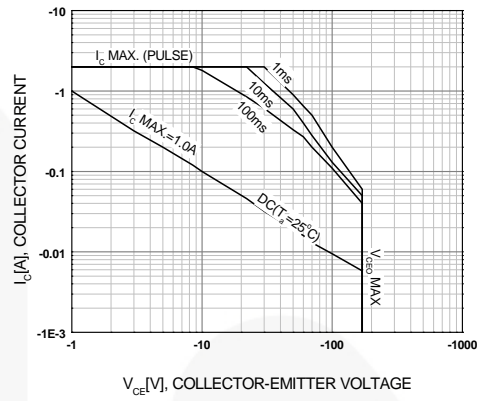
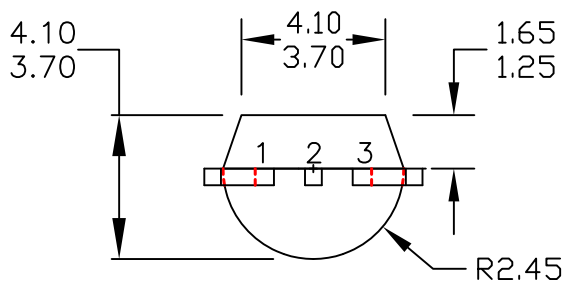
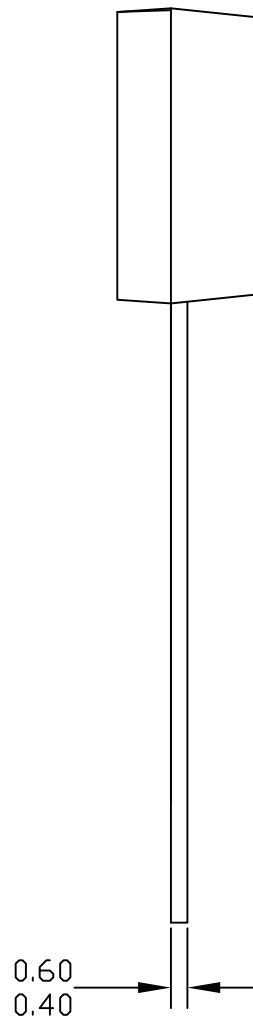
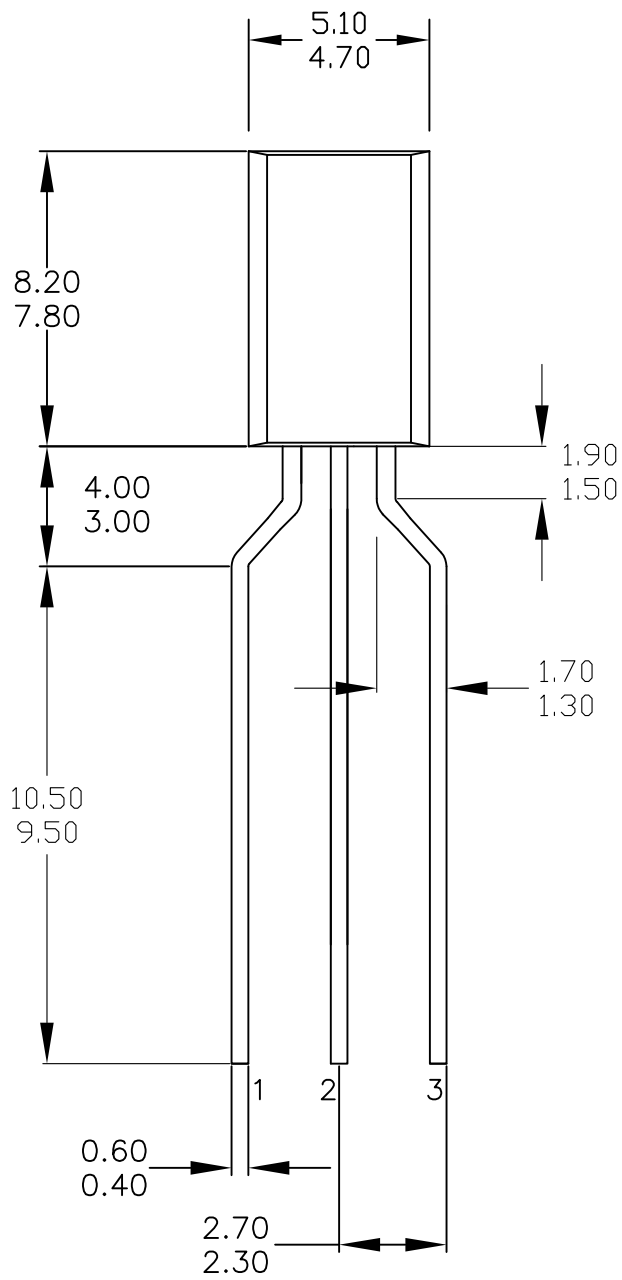


Figure 8. Safe Operating Area

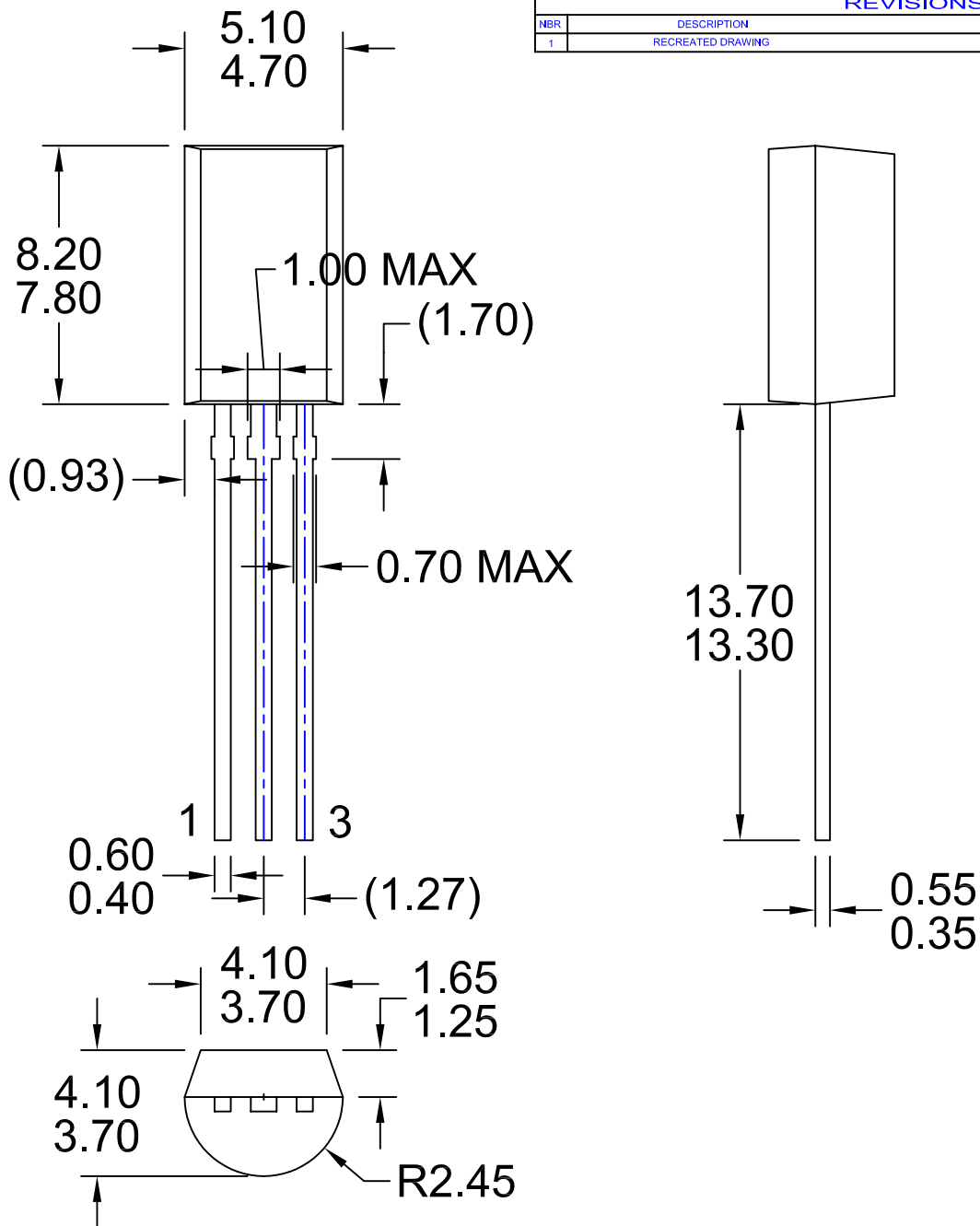


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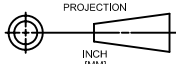
REVISIONS

NBR	DESCRIPTION	DATE	BY/SITE
1	RECREATED DRAWING	10 JULY 08	L.HUEBENER/FSME



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DRAWN: L.HUEBENER		10 JULY 08			
CHECKED: H.ALLEN		10 DEC 08			
APPROVED:					
			3LD, TO92L, 8MM TALL BODY		
		SCALE	SIZE	DRAWING NUMBER	REV
		1:1	N/A	MKT-ZA03H	1
FORMERLY: N/A			SHEET: 1 OF 1		

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