



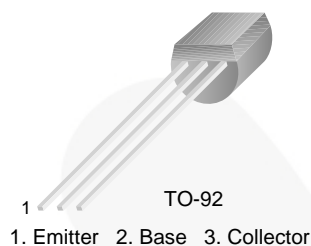
February 2015

KSP94

PNP Epitaxial Silicon Transistor

Features

- High Voltage Transistor
- High Collector-Emitter Voltage: $V_{CEO} = -400\text{ V}$
- Low Collector-Emitter Saturation Voltage
- Complement to KSP44



Ordering Information

Part Number	Top Mark	Package	Packing Method
KSP94BU	KSP94	TO-92 3L	Bulk
KSP94TA	KSP94	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	-400	V
V_{CEO}	Collector-Emitter Voltage	-400	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Collector Current	-300	mA
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-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	625	mW
	Derate Above 25°C	5.0	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	200	$^\circ\text{C}/\text{W}$

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	$I_C = -100\ \mu\text{A}$, $I_E = 0$	-400			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = -100\ \mu\text{A}$, $I_B = 0$	-400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = -10\ \mu\text{A}$, $I_C = 0$	-6			V
I_{CBO}	Collector Cut-Off Current	$V_{CB} = -300\ \text{V}$, $I_E = 0$			-100	nA
I_{CES}	Collector Cut-Off Current	$V_{CE} = -400\ \text{V}$, $V_{BE} = 0$			-1	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -4\ \text{V}$, $I_C = 0$			-100	nA
h_{FE}	DC Current Gain	$V_{CE} = -10\ \text{V}$, $I_C = -1\ \text{mA}$	40			
		$V_{CE} = -10\ \text{V}$, $I_C = -10\ \text{mA}$	50		300	
		$V_{CE} = -10\ \text{V}$, $I_C = -50\ \text{mA}$	45			
		$V_{CE} = -10\ \text{V}$, $I_C = -100\ \text{mA}$	40			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -10\ \text{mA}$, $I_B = -1\ \text{mA}$			-500	mV
		$I_C = -50\ \text{mA}$, $I_B = -5\ \text{mA}$			-750	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -10\ \text{mA}$, $I_B = -1\ \text{mA}$			-750	mV
C_{ob}	Output Capacitance	$V_{CB} = -20\ \text{V}$, $I_E = 0$, $f = 1\ \text{MHz}$		7		pF

Typical Performance Characteristics

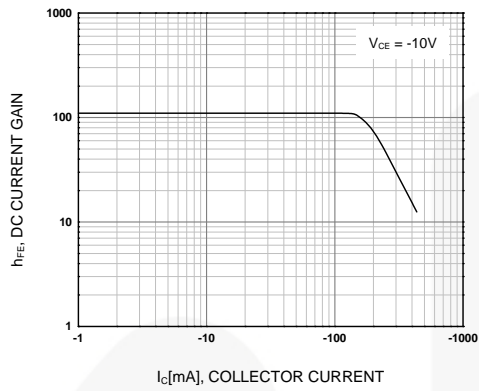


Figure 1. DC Current Gain

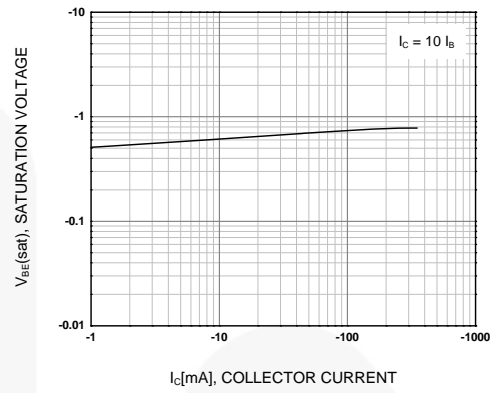


Figure 2. Base-Emitter Saturation Voltage

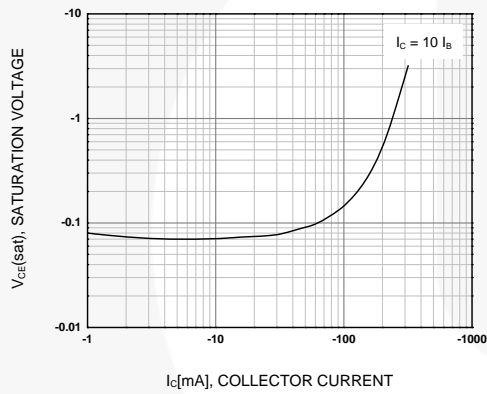


Figure 3. Collector-Emitter Saturation Voltage

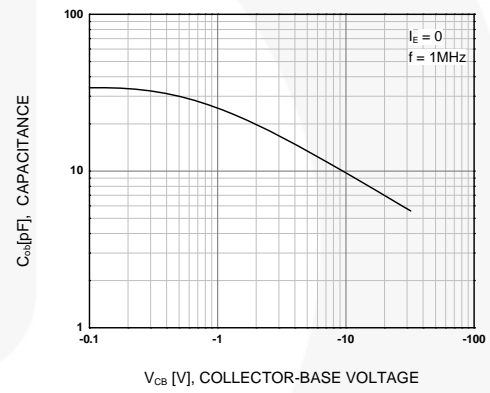
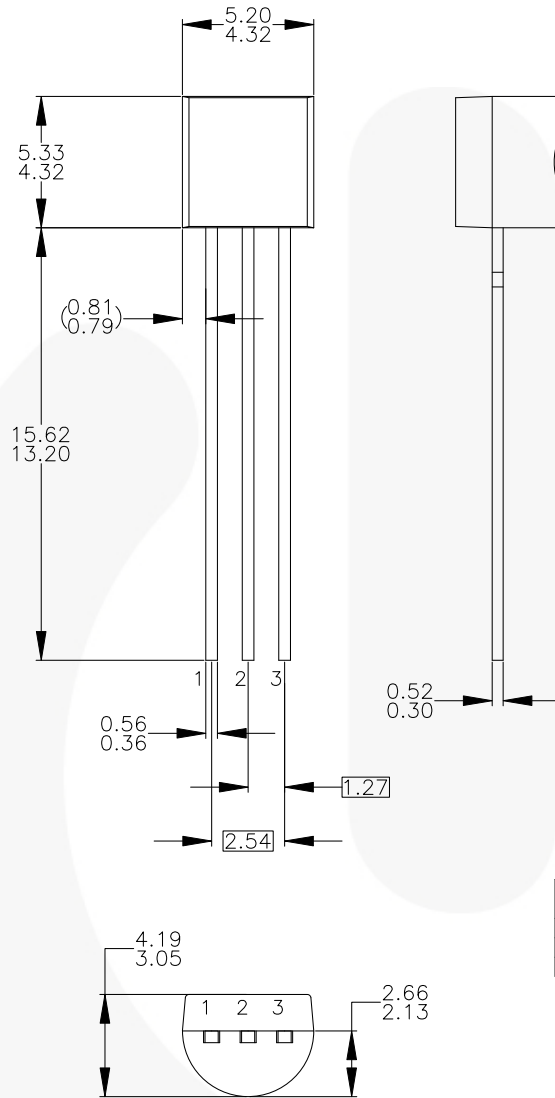


Figure 4. Collector Output Capacitance

Physical Dimensions



NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-1994.
- D) TO-92 (92,94,96,97,98) PIN CONFIGURATION:

PIN	92			94			96			97			98		
	P	F	M	P	F	M	B	F	M	P	F	M	P	F	M
1	E	S	S	E	S	S	B	D	G	C	G	D	C	G	D
2	B	D	G	C	G	D	E	S	S	B	D	G	E	S	S
3	C	G	D	B	D	G	C	G	D	E	S	S	B	D	G

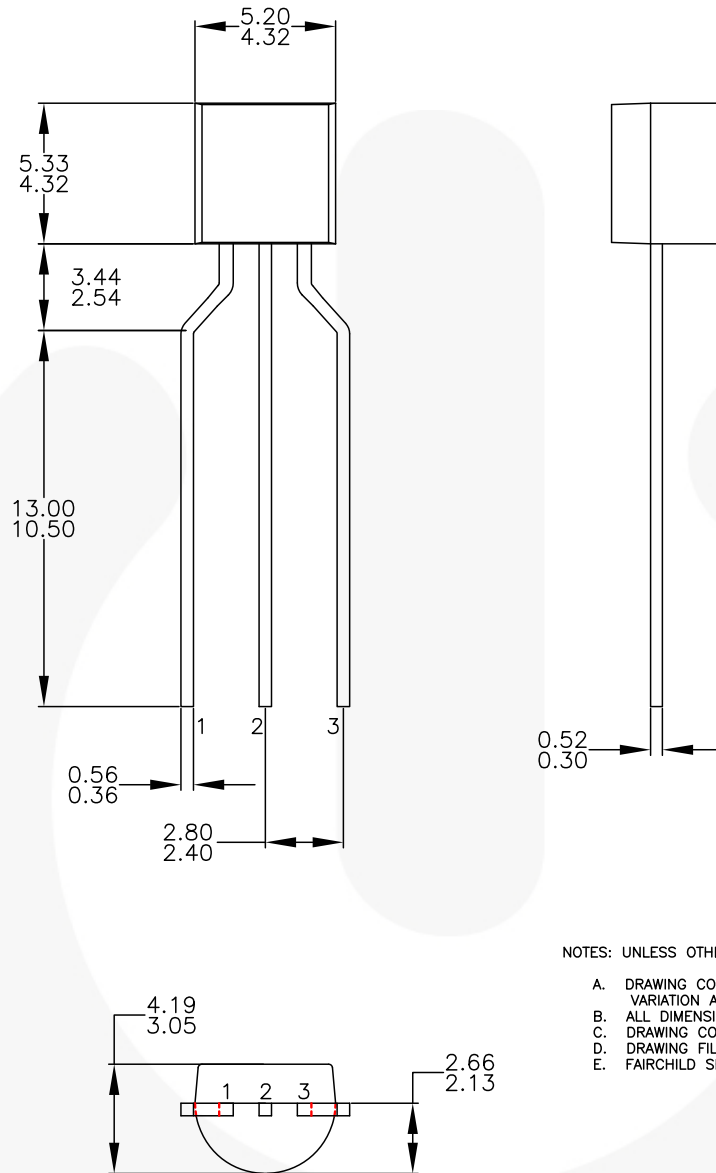
LEGEND:

P - BIPOLAR E - EMITTER D - DRAIN
F - JFET B - BASE S - SOURCE
M - DMOS C - COLLECTOR G - GATE

- E) FOR PACKAGE 92, 94, 96, 97 AND 98:
PIN CONFIGURATION DRAIN "D" AND SOURCE "S"
ARE INTERCHANGEABLE AT JFET "F" OPTION.
- F) DRAWING FILENAME: MKT-ZA03DREV3.

Figure 5. 3-Lead, TO-92, JEDEC TO-92 Compliant Straight Lead Configuration, Bulk Type

Physical Dimensions (Continued)



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-ZA03FREX3.
- E. FAIRCHILD SEMICONDUCTOR.

Figure 6. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo Type



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