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September 2015

KSA643 PNP Epitaxial Silicon Transistor

Features

- · Low Frequency Power Amplifier
- Collector Power Dissipation : P_C = 500 mW
- · Complement to KSD261
- Suffix "-C" means Center Collector (1. Emitter 2. Collector 3. Base)
- Non Suffix "-C" means Side Collector (1. Emitter 2. Base 3. Collector)



Ordering Information

Part Number	Top Mark	Package	Packing Method	
KSA643YTA	A643	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	-40	V
V _{CEO}	Collector-Emitter Voltage	-20	V
V _{EBO}	Emitter-Base Voltage	-5	V
I _C	Collector Current (DC)	-500	mA
I _{CP}	Collector Current (Pulse) ⁽¹⁾	-700	mA
TJ	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-55 to 150	°C

Note

1. PW \leq 10 ms, duty cycle \leq 50%

Thermal Characteristics(2)

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

Symbol	Parameter	Value	Unit
P _C	Collector Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	250	°C/W

Note:

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

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
BV _{CBO}	Collector-Base Breakdown Voltage	$I_C = -100 \mu A, I_E = 0$	-40			V
BV _{CEO}	Collector-Emitter Breakdown Voltage	$I_C = -10 \text{ mA}, I_B = 0$	-20			V
BV _{EBO}	Emitter-Base Breakdown Voltage	$I_E = -10 \mu A, I_C = 0$	-5			V
I _{CBO}	Collector Cut-Off Current	$V_{CB} = -25 \text{ V}, I_{E} = 0$			-200	nA
I _{EBO}	Emitter Cut-Off Current	$V_{EB} = -3 \text{ V, } I_{C} = 0$			-200	nA
h _{FE}	DC Current Gain ⁽³⁾	$V_{CE} = -1 \text{ V, } I_{C} = -100 \text{ mA}$	40	\.	400	
V _{CE} (sat)	Collector-Emitter Saturation Voltage ⁽³⁾	I _C = -500 A, I _B = -50 mA		-0.3	-0.4	V
V _{BE} (sat)	Base-Emitter Saturation Voltage ⁽³⁾	I _C = -500 A, I _B = -50 mA		-1.0	-1.3	V

Note:

3. Pulse Test: PW \leq 350 μ s, duty cycle \leq 2%

h_{FE} Classification

Classification	R	0	Y	G
h _{FE}	40 ~ 80	70 ~ 140	120 ~ 240	200 ~ 400

Typical Performance Characteristics

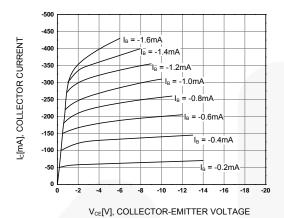


Figure 1. Static Characteristic

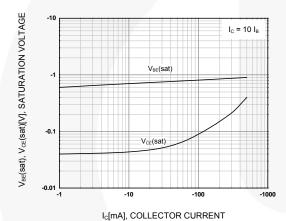


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

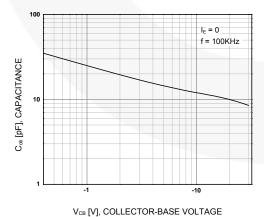


Figure 5. Collector Output Capacitance

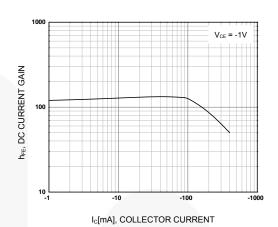


Figure 2. DC Current Gain

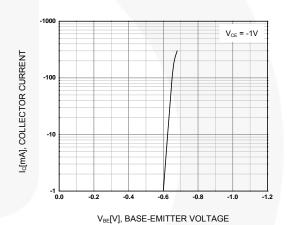
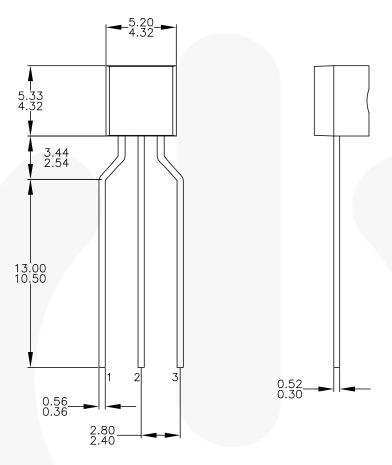
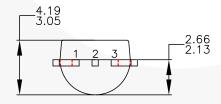


Figure 4. Base-Emitter On Voltage

Physical Dimensions





NOTES: UNLESS OTHERWISE SPECIFIED

- DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC. ALL DIMENSIONS ARE IN MILLIMETERS. DRAWING CONFORMS TO ASME Y14.5M-2009. DRAWING FILENAME: MKT-ZAO3FREV3. FAIRCHILD SEMICONDUCTOR.

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





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Definition of Terms

Definition of Terms				
Datasheet Identification	Product Status	Definition		
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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.		
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