

KSC838

FM Radio RF AMP, MIX, CONV, OSC, IF AMP

- High Current Gain Bandwidth Product : $f_T=250\text{MHz}$ (TYP.)
- Suffix "-C" means Center Collector (1. Emitter 2. Collector 3. Base)



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	35	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	4	V
I_C	Collector Current	30	mA
P_C	Collector Power Dissipation	250	mW
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C=100\mu\text{A}$, $I_E=0$	35			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C=5\text{mA}$, $I_B=0$	30			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E=10\mu\text{A}$, $I_C=0$	4			V
I_{CBO}	Collector Cut-off Current	$V_{CB}=30\text{V}$, $I_E=0$			0.1	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=4\text{V}$, $I_C=0$			0.1	μA
h_{FE}	DC Current Gain	$V_{CE}=12\text{V}$, $I_C=2\text{mA}$	40		240	
$V_{BE}(\text{on})$	Base-Emitter On Voltage	$V_{CE}=6\text{V}$, $I_C=1\text{mA}$	0.65	0.70	0.75	V
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C=10\text{mA}$, $I_B=1\text{mA}$		0.1	0.4	V
f_T	Current Gain Bandwidth Product	$V_{CE}=10\text{V}$, $I_C=1\text{mA}$	100	250		MHz
C_{ob}	Output Capacitance	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$		2.0	3.2	pF

h_{FE} Classification

Classification	R	O	Y
h_{FE}	40 ~ 80	70 ~ 140	120 ~ 240

Typical Characteristics

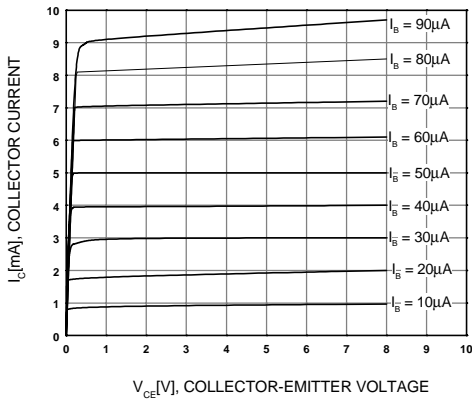


Figure 1. Static Characteristic

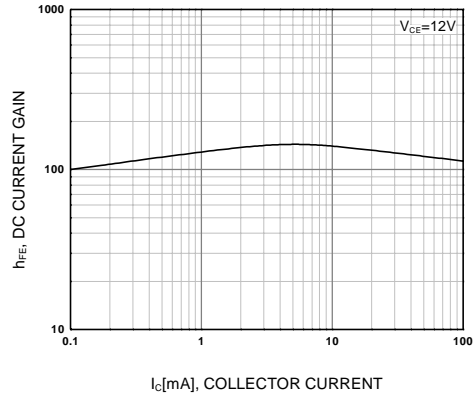


Figure 2. DC current Gain

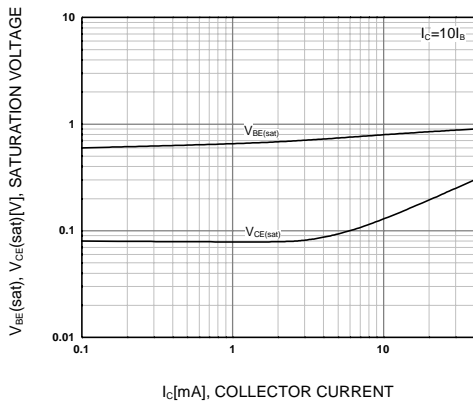


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

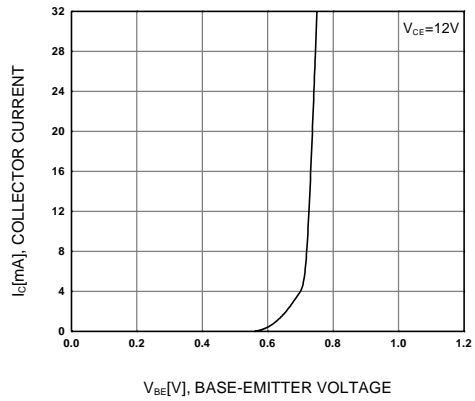


Figure 4. Base-Emitter On Voltage

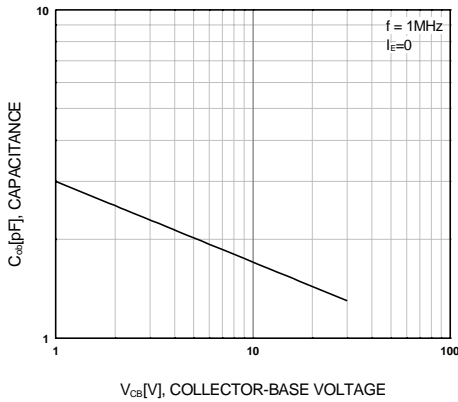


Figure 5. Collector Output Capacitance

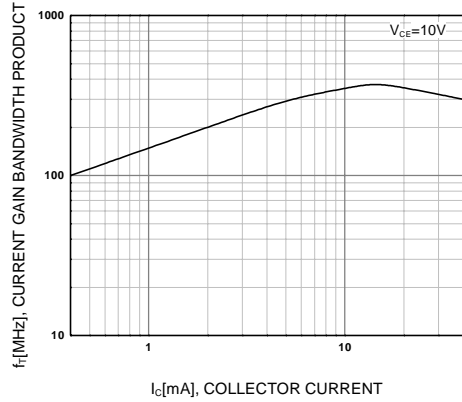


Figure 6. Current Gain Bandwidth Product

Package Dimensions

KSC838

TO-92



Dimensions in Millimeters

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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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Features

- High Current Gain Bandwidth Product : $f_T=250\text{MHz}$ (TYP.)
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Applications

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Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
KSC838COTA	Full Production	\$0.045	TO-92	3	TAPE REEL
KSC838CYTA	Full Production	\$0.045	TO-92	3	TAPE REEL
KSC838YBU	Full Production	\$0.045	TO-92	3	BULK
KSC838OBU	Full Production	\$0.045	TO-92	3	BULK
KSC838YTA	Full Production	\$0.045	TO-92	3	TAPE REEL
KSC838CYBU	Full Production	\$0.045	TO-92	3	BULK
KSC838OTA	Full Production	\$0.045	TO-92	3	TAPE REEL
KSC838COBU	Full Production	\$0.045	TO-92	3	BULK

* 1,000 piece Budgetary Pricing

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