FAIRCHILD
SEMICONDUCTOR®

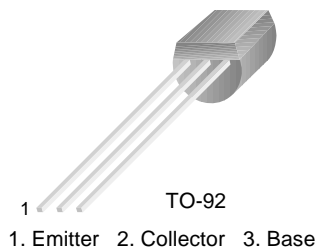## KSC1730

TV VHF, UHF Tuner Oscillator
- High Current Gain Bandwidth Product : f_T=1100MHz
- Output Capacitance : C_{OB}=1.5pF (MAX.)

TO-92

1. Emitter   2. Collector   3. Base

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	50	mA
P_C	Collector Power Dissipation	250	mW
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 ~ 150	°C

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C=10μA, I_E=0	30			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C=5mA, I_B=0	15			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E=10μA, I_C=0	5			V
I_{CBO}	Collector Cut-off Current	V_{CB}=12V, I_E=0			0.1	μA
h_{FE}	DC Current Gain	V_{CE}=10V, I_C=5mA	40		240	
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C=10mA, I_B=1mA			0.5	V
f_T	Current Gain Bandwidth Product	V_{CE}=10V, I_C=5mA	800	1100		MHz
C_{ob}	Output Capacitance	V_{CB}=10V, I_E=0, f=1MHz			1.5	pF
$C_{c\cdot rbb'}$	Collector-Base Time Constant	V_{CE}=10V, I_E=5mA f=31.9MHz		10	20	ps

h_{FE} Classification

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

Typical Characteristics
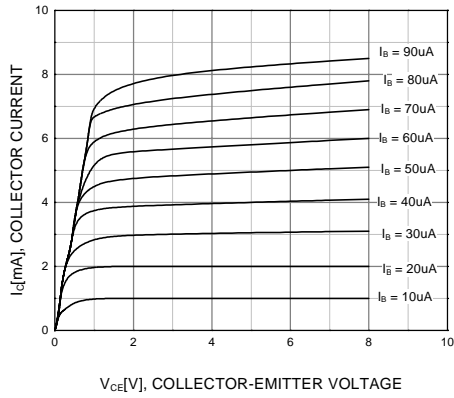
Figure 1. Static Characteristic

Figure 1 axes: I_C[mA], COLLECTOR CURRENT vs V_{CE}[V], COLLECTOR-EMITTER VOLTAGE. Curves labeled $I_B = 90uA$, $I_B = 80uA$, $I_B = 70uA$, $I_B = 60uA$, $I_B = 50uA$, $I_B = 40uA$, $I_B = 30uA$, $I_B = 20uA$, $I_B = 10uA$.
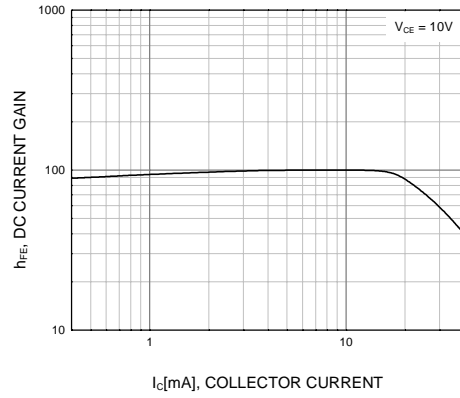
Figure 2. DC current Gain

Figure 2 axes: h_{FE}, DC CURRENT GAIN vs I_C[mA], COLLECTOR CURRENT. $V_{CE} = 10V$.
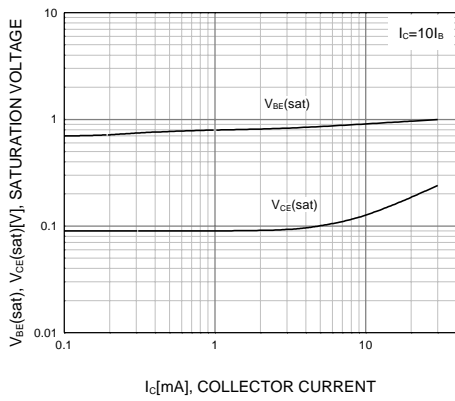
Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

Figure 3 axes: V_{BE}(sat), V_{CE}(sat)[V], SATURATION VOLTAGE vs I_C[mA], COLLECTOR CURRENT. $I_C = 10I_B$. Curves: V_{BE}(sat), V_{CE}(sat).
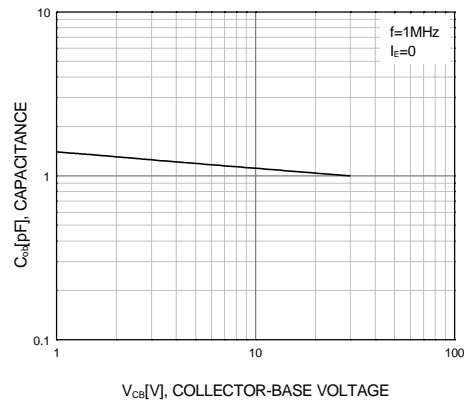
Figure 4. Collector Output Capacitance

Figure 4 axes: C_{ob}[pF], CAPACITANCE vs V_{CB}[V], COLLECTOR-BASE VOLTAGE. $f = 1MHz$, $I_E = 0$.
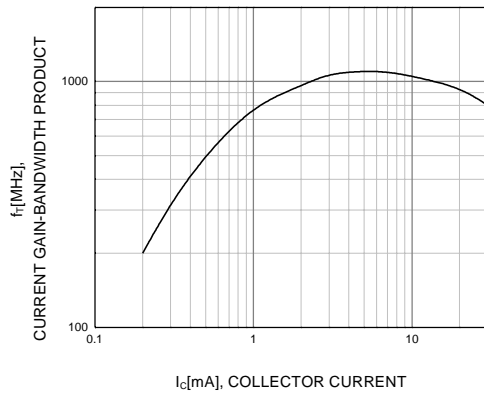
Figure 5. Current Gain Bandwidth Product

Figure 5 axes: f_T[MHz], CURRENT GAIN-BANDWIDTH PRODUCT vs I_C[mA], COLLECTOR CURRENT.
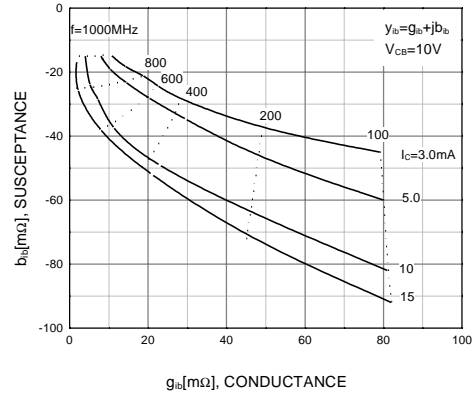
Figure 6. Input Admittance (yib) vs. Frequency

Figure 6 axes: b_{ib}[mΩ], SUSCEPTANCE vs g_{ib}[mΩ], CONDUCTANCE. $y_{ib} = g_{ib} + jb_{ib}$, $V_{CB} = 10V$. Curves labeled $f = 1000MHz$, 800, 600, 400, 200, 100. $I_C = 3.0mA$, 5.0, 10, 15.
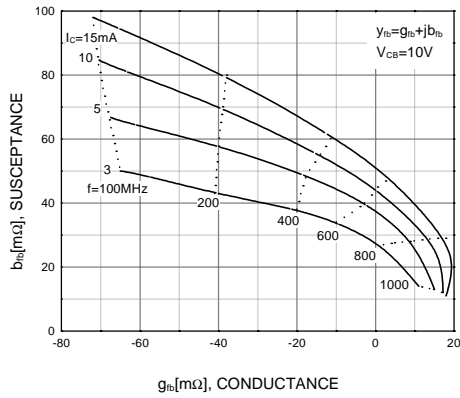
Typical Characteristics (Continued)

Figure 7. Forward Transfer Admittance (yfb) vs. Frequency

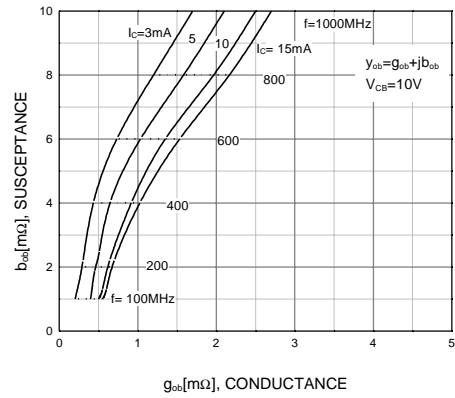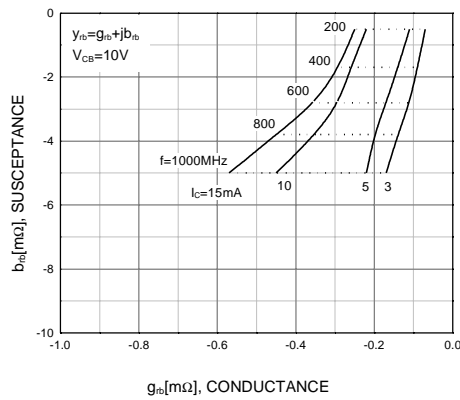**Figure 8. Output Admittance (yob) vs. Frequency**

Figure 9. Reverse Transfer Admittance (yrb) vs. Frequency

Package Demensions

TO-92

$4.58 \, ^{+0.25}_{-0.15}$

4.58 ± 0.20

0.46 ± 0.10

14.47 ± 0.40

1.27TYP
[1.27 ±0.20]

1.27TYP
[1.27 ±0.20]

$0.38 \, ^{+0.10}_{-0.05}$

3.60 ±0.20

3.86MAX

1.02 ± 0.10

$0.38 \, ^{+0.10}_{-0.05}$

(0.25)

(R2.29)
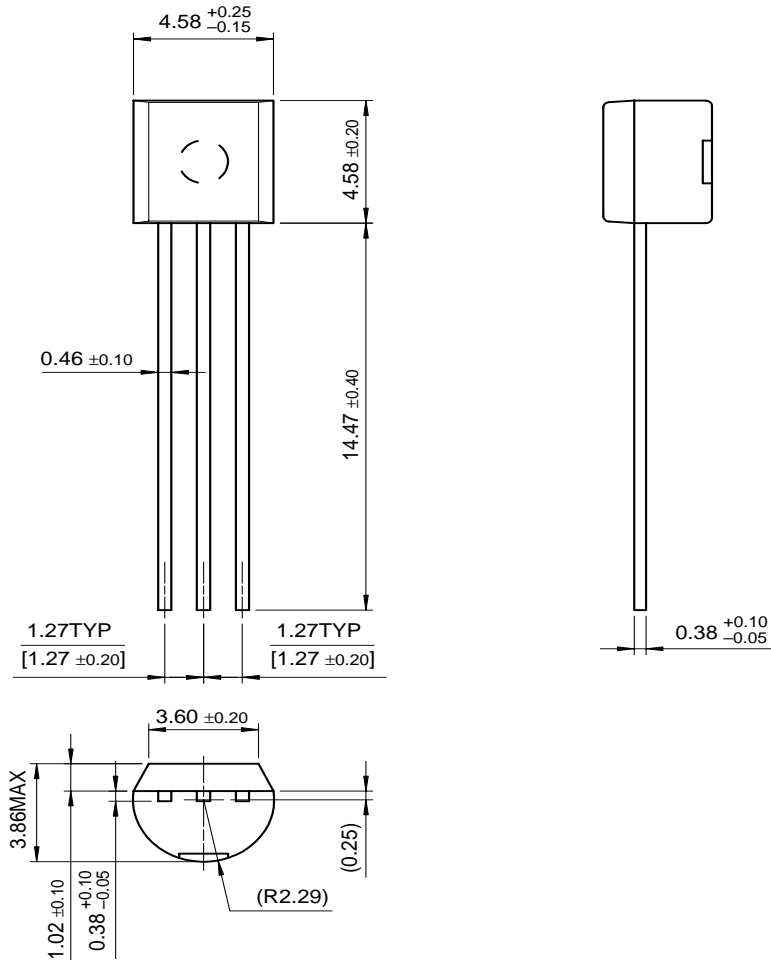
Dimensions in Millimeters

TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx™	FAST®	OPTOPLANAR™	STAR*POWER™
Bottomless™	FASTr™	PACMAN™	Stealth™
CoolFET™	FRFET™	POP™	SuperSOT™-3
CROSSVOLT™	GlobalOptoisolator™	Power247™	SuperSOT™-6
DenseTrench™	GTO™	PowerTrench®	SuperSOT™-8
DOME™	HiSeC™	QFET™	SyncFET™
EcoSPARK™	ISOPLANAR™	QS™	TruTranslation™
E^{2}CMOS™	LittleFET™	QT Optoelectronics™	TinyLogic™
EnSigna™	MicroFET™	Quiet Series™	UHC™
FACT™	MICROWIRE™	SLIENT SWITCHER®	UltraFET®
FACT Quiet Series™	OPTOLOGIC™	SMART START™	VCX™

STAR*POWER is used under license

DISCLAIMER
FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.
As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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.

Fairchild Semiconductor

space | Product Folders and | Applica

find products

Home >> Find products >>

Products groups
Analog and Mixed Signal
Discrete
Interface
Logic
Microcontrollers
Non-Volatile Memory
Optoelectronics
Markets and applications
New products
Product selection and parametric search
Cross-reference search

technical information

buy products

technical support

my Fairchild

company

KSC1730
NPN Epitaxial Silicon Transistor

Contents
Features | Applications | Product status/pricing/packaging

Features

- High Current Gain Bandwidth Product : f_T=1100MHz
- Output Capacitance : C_{OB}=1.5pF (MAX.)

back to top

Applications

TV VHF,UHF Tuner Oscillator

back to top

Datasheet
Download this datasheet

PDF

e-mail this datasheet

[E-

This page
Print version

Related Links

Request samples
Dotted line
How to order products
Dotted line
Product Change Notices (PCNs)
Dotted line
Support
Dotted line
Distributor and field sales representatives
Dotted line
Quality and reliability
Dotted line
Design tools

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
KSC1730OBU	Full Production	$0.053	TO-92	3	BULK
KSC1730YTA	Full Production	$0.053	TO-92	3	TAPE REEL
KSC1730YBU	Full Production	$0.053	TO-92	3	BULK
KSC1730OTA	Full Production	$0.053	TO-92	3	TAPE REEL

* 1,000 piece Budgetary Pricing

back to top

Product Folder - Fairchild P/N KSC1730 - NPN Epitaxial Silicon Transistor