

REPLACEMENT TYPE : S9014

FEATURES

- High total power dissipation.($P_C=0.45W$)
- High h_{FE} and good linearity
- Complementary to HCS9015



TO-92

1:EMITTER 2:BASE 3:COLLECTOR

MAXIMUM RATINGS ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current-Continuous	I_C	100	mA
Collector Power Dissipation	P_C	450	mW
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{stg}	-55 -150	$^{\circ}C$

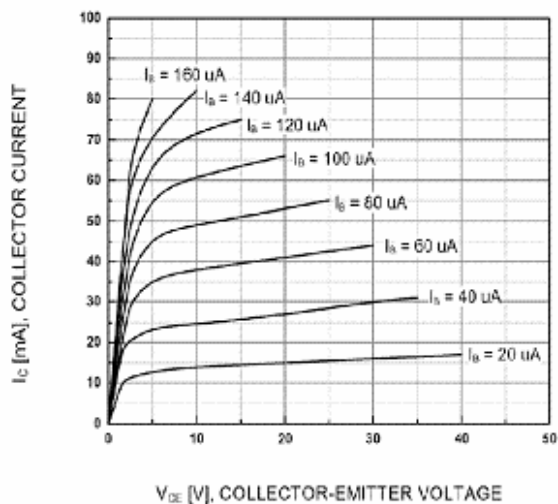
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=100\mu A$, $I_E=0$	50			V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C=1mA$, $I_B=0$	45			V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E=100\mu A$, $I_C=0$	5			V
Collector Cut-off Current	I_{CBO}	$V_{CB}=50V$, $I_E=0$			0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE}=35V$, $I_B=0$			1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=5V$, $I_C=0$			0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5V$, $I_C=1mA$	60		1000	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100mA$, $I_B=5A$			0.3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=100mA$, $I_B=5mA$			1	V
Transition Frequency	f_T	$V_{CE}=5V$, $I_C=10mA$ $f=30MHz$	150			MHz

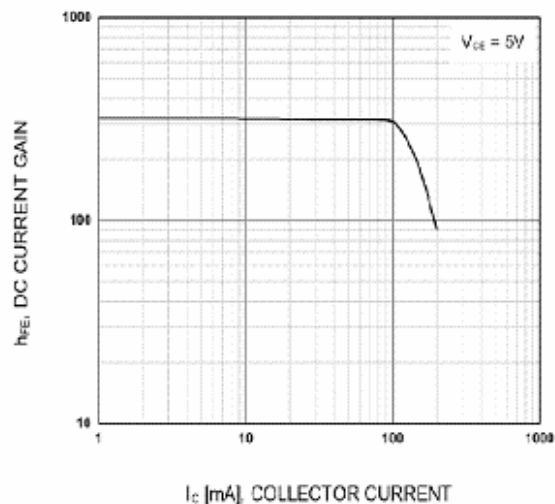
CLASSIFICATION OF h_{FE}

Rank	A	B	C	C
Range	60-150	100-300	200-600	400-1000

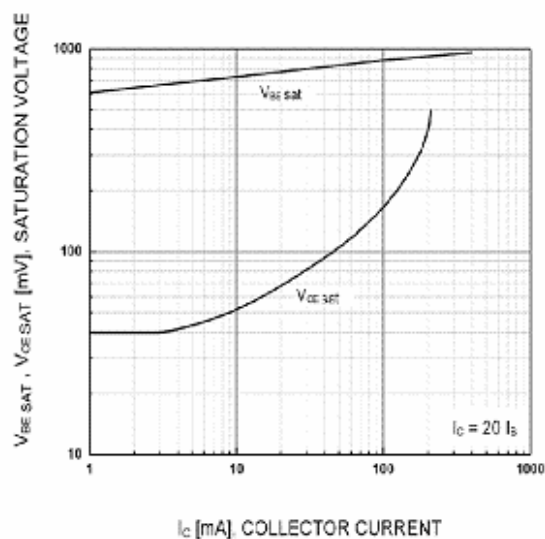
Typical Characteristics



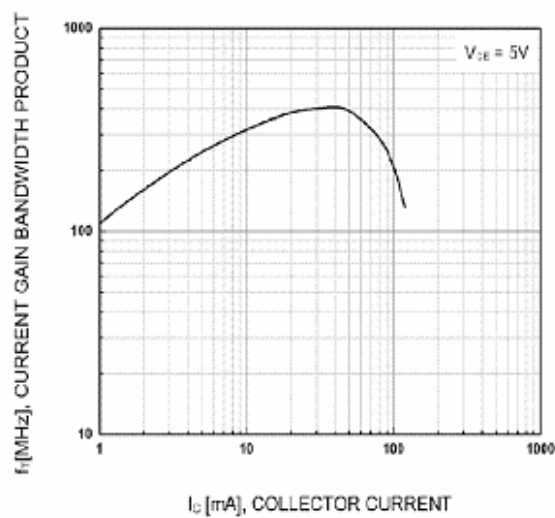
Static Characteristic



DC current Gain

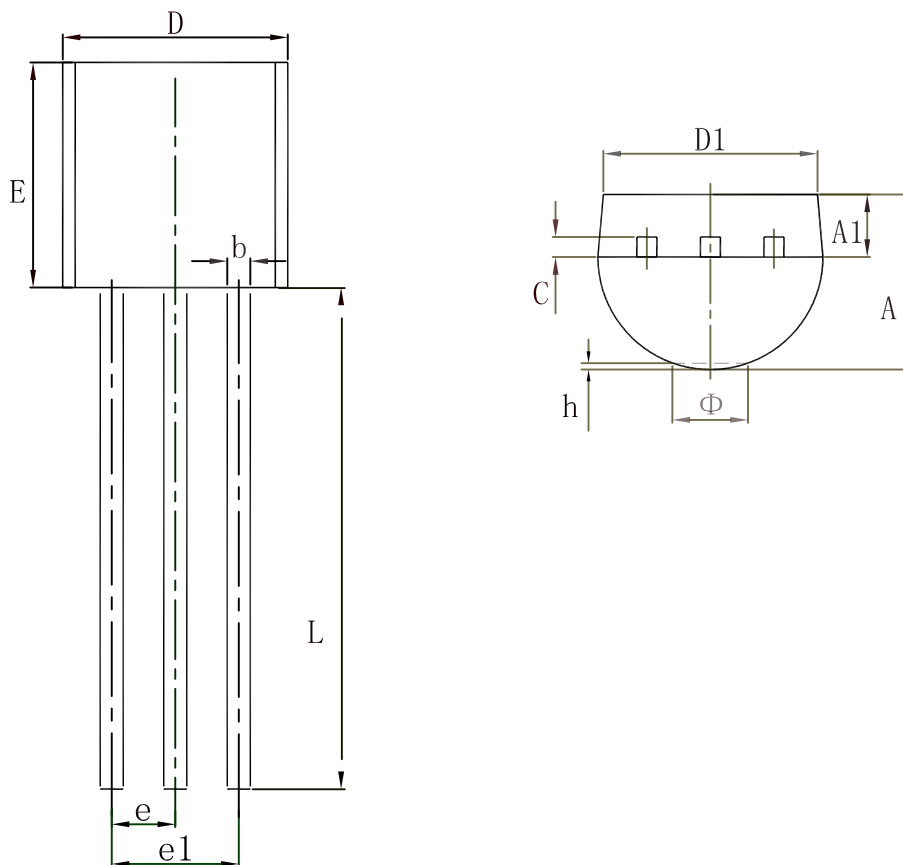


**Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage**



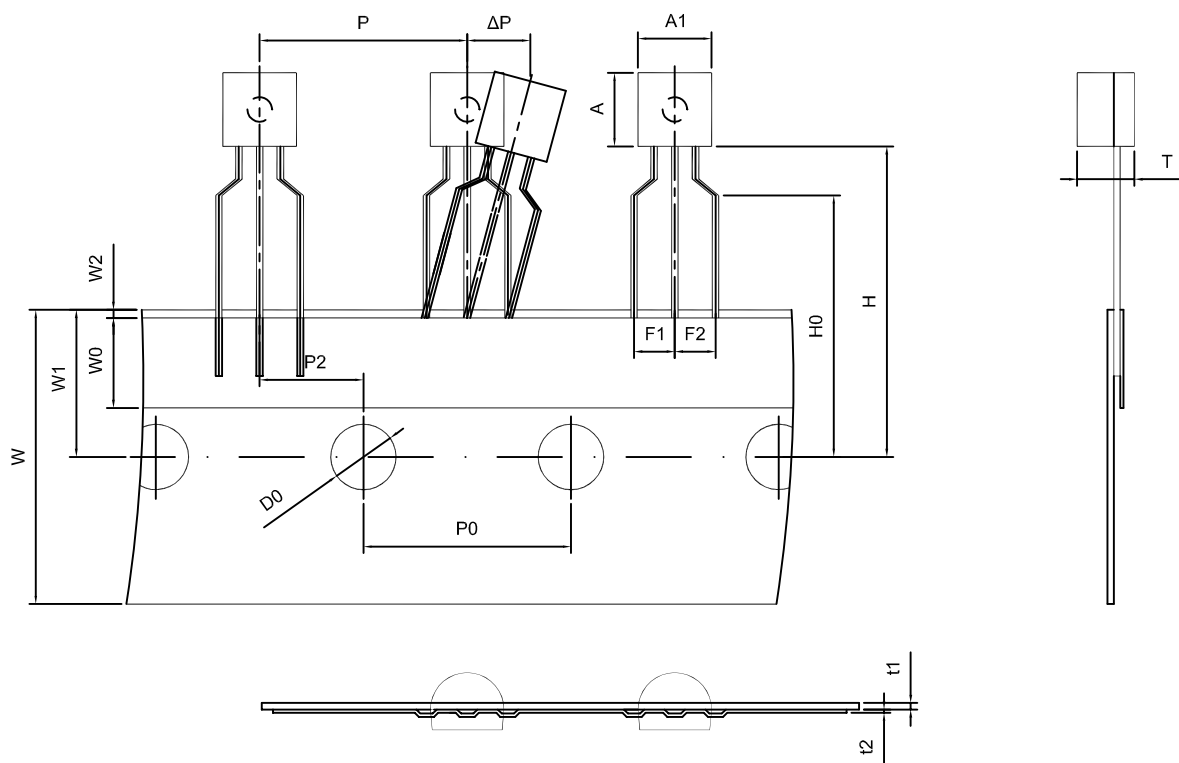
Current Gain Bandwidth Product

TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Package Taping Dimension



Dimiensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
4.5±0.2	4.5±0.2	3.5±0.2	12.7±0.3	12.7±0.2	6.35±0.3	2.5±0.3	2.5±0.3	18.0+1.0/-0.5
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0±0.5	9.0±0.5	1.0 MAX.	19.0±1.0	16.0±0.5	4.0±0.5	0.4±0.05	0.2±0.05	0 ± 1.0

