



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

S9013

TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

Description

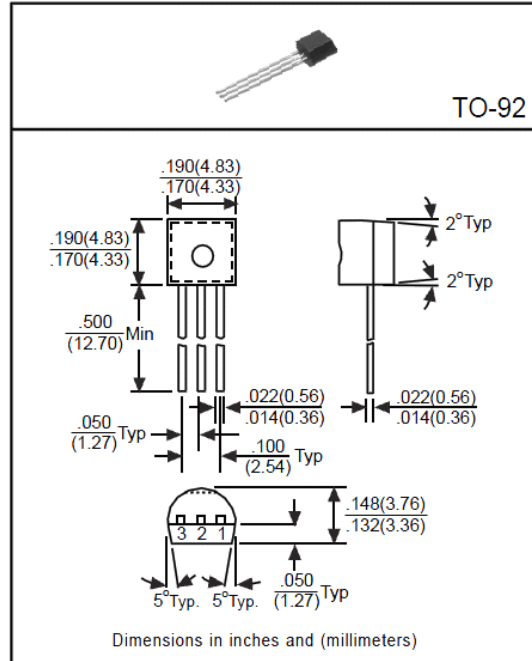
Designed for use in 1W output amplifier of portable radios in class B push-pull operation.

Pinning

- 1 = Emitter
- 2 = Base
- 3 = Collector

Absolute Maximum Ratings (TA=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V _{CB0}	40	V
Collector-Emitter Voltage	V _{CEO}	20	V
Emitter-Base Voltage	V _{EB0}	5	V
Collector Current	I _C	500	mA
Base Current	I _B	100	mA
Total Power Dissipation	P _D	625	mW
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 to +150	°C



Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector-Base Breakdown Voltage	BV _{CB0}	40	-	-	V	I _C =100μA, I _E =0
Collector-Emitter Breakdown Voltage	BV _{CEO}	20	-	-	V	I _C =1mA, I _B =0
Emitter-Base Breakdown Voltage	BV _{EB0}	5	-	-	V	I _E =100μA, I _C =0
Collector Cutoff Current	I _{CBO}	-	-	100	nA	V _{CB} =25V, I _E =0
Emitter Cutoff Current	I _{EB0}	-	-	100	nA	V _{EB} =3V, I _C =0
Collector-Emitter Saturation Voltage ⁽¹⁾	V _{CE(sat)}	-	-	0.6	V	I _C =500mA, I _B =50mA
Base-Emitter Saturation Voltage ⁽¹⁾	V _{BE(sat)}	-	-	1.2	V	I _C =500mA, I _B =50mA
Base-Emitter On Voltage	V _{BE(on)}	-	-	0.9	V	I _C =10mA, V _{CE} =1V
DC Current Gain ⁽¹⁾	h _{FE1}	64	120	300	-	I _C =50mA, V _{CE} =1V
	h _{FE2}	40	-	-	-	I _C =500mA, V _{CE} =1V
Transition Frequency	f _T	100	-	-	MHz	I _C =10mA, V _{CE} =1V, f=100MHz
Output Capacitance	C _{ob}	-	-	8	pF	V _{CB} =10V, f=1MHz

(1) Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

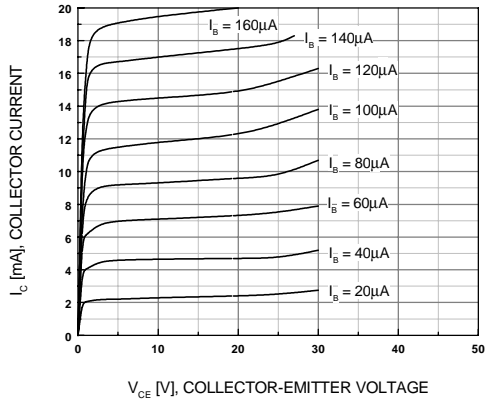
Classification of h_{FE1}

Rank	D	E	F	G	H	I	I1	I2
Range	64~91	78~112	96~135	112~166	144~202	176~300	176~246	214~300

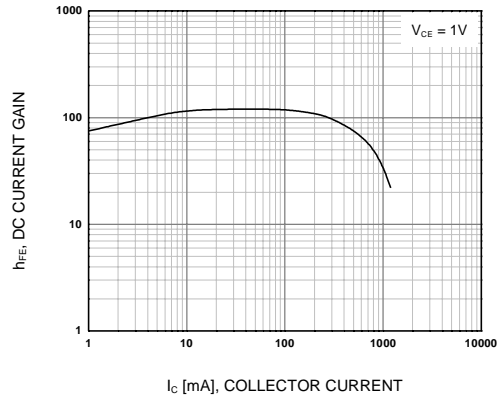


Electrical Characteristic Curves

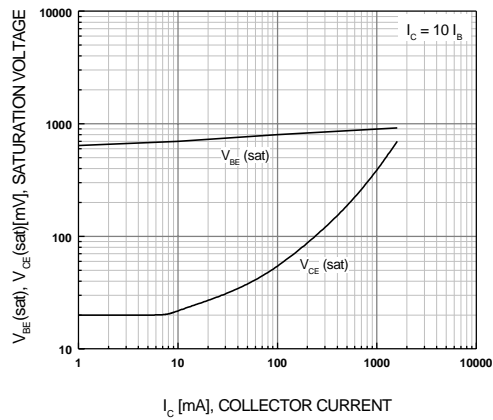
Typical Output Characteristics



DC current Gain



Collector-Emitter Saturation Voltage



Current Gain Bandwidth Product

