



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

S9013

TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

Description

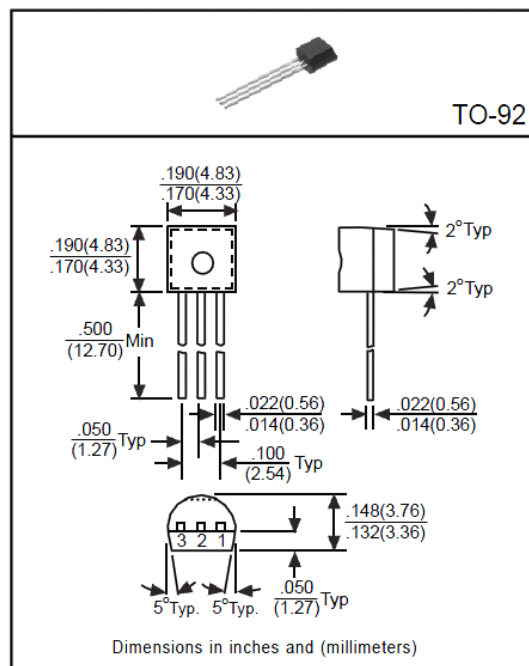
Designed for use in 1W output amplifier of portable radios in class B push-pull operation.

Pinning

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

Absolute Maximum Ratings($T_A=25^{\circ}\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	40	V
Collector-Emitter Voltage	V_{CE0}	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	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$



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	$I_C=100\mu\text{A}$, $I_E=0$
Collector-Emitter Breakdown Voltage	BV_{CE0}	20	-	-	V	$I_C=1\text{mA}$, $I_B=0$
Emitter-Base Breakdown Voltage	BV_{EB0}	5	-	-	V	$I_E=100\mu\text{A}$, $I_C=0$
Collector Cutoff Current	I_{C0}	-	-	100	nA	$V_{CB}=25\text{V}$, $I_E=0$
Emitter Cutoff Current	I_{E0}	-	-	100	nA	$V_{EB}=3\text{V}$, $I_C=0$
Collector-Emitter Saturation Voltage ⁽¹⁾	$V_{CE(sat)}$	-	-	0.6	V	$I_C=500\text{mA}$, $I_B=50\text{mA}$
Base-Emitter Saturation Voltage ⁽¹⁾	$V_{BE(sat)}$	-	-	1.2	V	$I_C=500\text{mA}$, $I_B=50\text{mA}$
Base-Emitter On Voltage	$V_{BE(on)}$	-	-	0.9	V	$I_C=10\text{mA}$, $V_{CE}=1\text{V}$
DC Current Gain ⁽¹⁾	h_{FE1}	64	120	300	-	$I_C=50\text{mA}$, $V_{CE}=1\text{V}$
	h_{FE2}	40	-	-	-	$I_C=500\text{mA}$, $V_{CE}=1\text{V}$
Transition Frequency	f_T	100	-	-	MHz	$I_C=10\text{mA}$, $V_{CE}=1\text{V}$, $f=100\text{MHz}$
Output Capacitance	C_{ob}	-	-	8	pF	$V_{CB}=10\text{V}$, $f=1\text{MHz}$

(1) Pulse Test: Pulse Width $\leq 380\mu\text{s}$, Duty Cycle $\leq 2\%$

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

Diode, Bridge
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Rectifiers

Diode, Bridge
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Rectifiers

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Electrical Characteristic Curves

