

TO-92 Plastic-Encapsulate Transistors

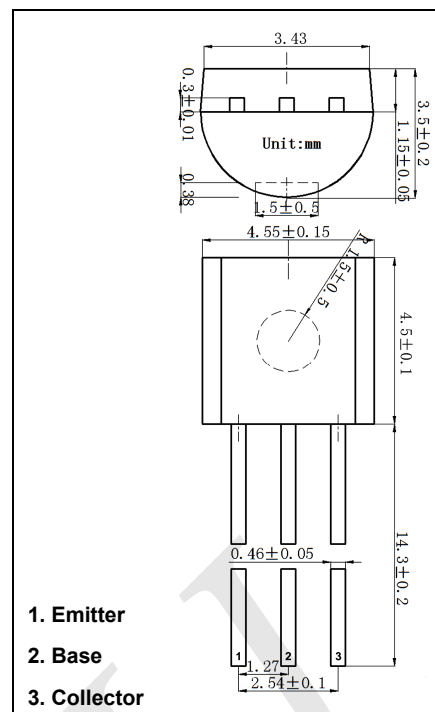
2N3906-338 PNP Transistors

Features

- PNP silicon epitaxial planar transistor for switching and Amplifier applications
- As complementary type, the NPN transistor 2N3904 is Recommended
- This transistor is also available in the SOT-23 case with the type designation MMBT3906

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector Base Voltage	-40	V
V_{CEO}	Collector Emitter Voltage	-40	V
V_{EBO}	Emitter Base Voltage	-5	V
I_C	Collector Current	-0.2	A
P_C	Collector Power Dissipation	0.625	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 specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = -10\mu\text{A}$, $I_E = 0$	-40			V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C = -1\text{mA}$, $I_B = 0$	-40			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = -10\mu\text{A}$, $I_C = 0$	-5			V
I_{CBO}	Collector cut-off current	$V_{CB} = -40\text{V}$, $I_E = 0$			-100	nA
I_{CEX}	Collector cut-off current	$V_{CE} = -30\text{V}$, $V_{EB(off)} = -3\text{V}$			-50	nA
I_{EBO}	Emitter cut-off current	$V_{EB} = -5\text{V}$, $I_C = 0$			-100	nA
$h_{FE(1)}$	DC current gain	$V_{CE} = -5\text{V}$, $I_C = -1\text{mA}$	100			
$h_{FE(2)}$		$V_{CE} = -1\text{V}$, $I_C = -10\text{mA}$	200		400	
$h_{FE(3)}$		$V_{CE} = -1\text{V}$, $I_C = -50\text{mA}$	60			
$h_{FE(4)}$		$V_{CE} = -1\text{V}$, $I_C = -100\text{mA}$	30			
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C = -50\text{mA}$, $I_B = -5\text{mA}$			-0.4	V
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_C = -50\text{mA}$, $I_B = -5\text{mA}$			-0.95	V
f_T	Transition frequency	$V_{CE} = -20\text{V}$, $I_C = -10\text{mA}$, $f = 100\text{MHz}$	250			MHz
t_d	Delay time	$V_{CC} = -3\text{V}$, $V_{BE} = -0.5\text{V}$, $I_C = -10\text{mA}$, $I_{B1} = -1\text{mA}$			35	ns
t_r	Rise time				35	ns
t_s	Storage time	$V_{CC} = -3\text{V}$, $I_C = -10\text{mA}$			225	ns
t_f	Fall time	$I_{B1} = I_{B2} = -1\text{mA}$			75	ns

Typical Characteristics

