

MICRO

ELECTRONICS

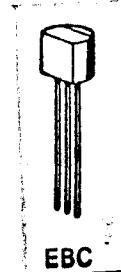
PN3638,A

PNP

SILICON

TRANSISTORS

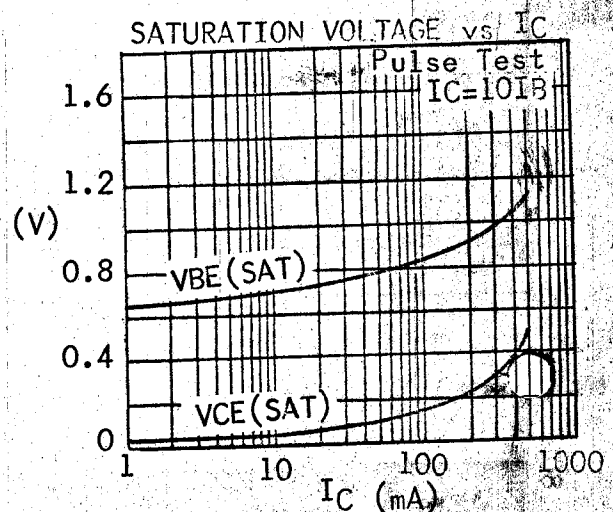
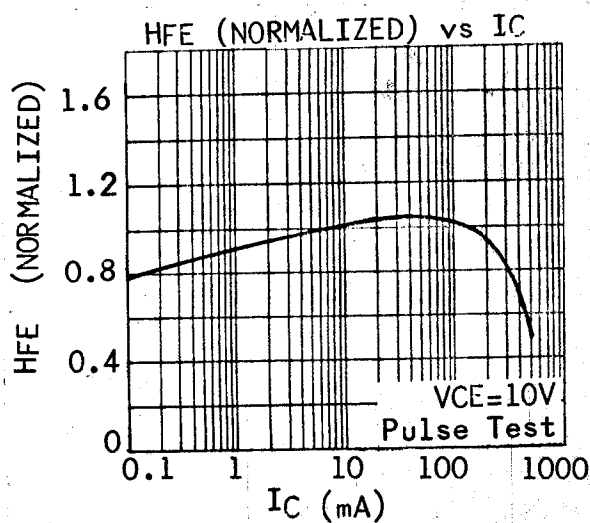
PN3638, PN3638A are PNP silicon planar epitaxial transistors designed for small signal general purpose amplifiers and switches.



ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage	V_{CB0}	25V
Collector-Emitter Voltage ($V_{BE}=0$)	V_{CES}	25V
Collector-Emitter Voltage ($I_B=0$)	V_{CE0}	25V
Emitter-Base Voltage	V_{EB0}	4V
Collector Current-Continuous	I_C	500mA
Total Power Dissipation ($T_A=25^{\circ}\text{C}$) ($T_C=25^{\circ}\text{C}$)	P_{tot}	625mW 1W
Operating Junction & Storage Temperature	T_j, T_{stg}	-55 to +150 $^{\circ}\text{C}$

TYPICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)



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

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	BVCBO	25		V	$I_C=100\mu\text{A}$ $I_E=0$
Collector-Emitter Breakdown Voltage	BVCEs	25		V	$I_C=100\mu\text{A}$ $V_{BE}=0$
Collector-Emitter Breakdown Voltage	LVCEO	25		V	$I_C=10\text{mA}$ $I_B=0^*$
Emitter-Base Breakdown Voltage	BVEBO	4		V	$I_E=100\mu\text{A}$ $I_C=0$
Collector Reverse Current	ICES		35	nA	$V_{CE}=15\text{V}$ $V_{BE}=0$
			2	μA	$V_{CE}=15\text{V}$ $T_A=65^{\circ}\text{C}$
D.C. Current Gain	PN3638	HFE	20		$I_C=10\text{mA}$ $V_{CE}=10\text{V}$
			30		$I_C=50\text{mA}$ $V_{CE}=1\text{V}^*$
			20		$I_C=300\text{mA}$ $V_{CE}=2\text{V}^*$
	PN3638A	HFE	80		$I_C=1\text{mA}$ $V_{CE}=10\text{V}$
			100		$I_C=10\text{mA}$ $V_{CE}=10\text{V}$
			100		$I_C=50\text{mA}$ $V_{CE}=1\text{V}^*$
			20		$I_C=300\text{mA}$ $V_{CE}=2\text{V}^*$
Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$		0.25	V	$I_C=50\text{mA}$ $I_B=2.5\text{mA}^*$
			1.0	V	$I_C=300\text{mA}$ $I_B=30\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})$		1.1	V	$I_C=50\text{mA}$ $I_B=2.5\text{mA}^*$
		0.8	2.0	V	$I_C=300\text{mA}$ $I_B=30\text{mA}^*$
Current Gain-Bandwidth Product	PN3638	f_T	100	MHz	$I_C=50\text{mA}$ $V_{CE}=3\text{V}$
	PN3638A		150		$f=100\text{MHz}$
Output Capacitance	PN3638	C_{ob}	20	pF	$V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$
	PN3638A		10		
Input Capacitance	C_{ib}		25	pF	$V_{EB}=0.5\text{V}$ $I_C=0$ $f=1\text{MHz}$

* Pulse Test : Pulse Width = $300\mu\text{S}$, Duty Cycle = 1%.

h-PARAMETER @ $I_C=10\text{mA}$ $V_{CE}=10\text{V}$ $f=1\text{KHz}$

PARAMETER	SYMBOL	PN3638 MIN	PN3638 MAX	PN3638A MIN	PN3638A MAX	UNIT
Small Signal Current Gain	h_{fe}	25		100		
Input Resistance	h_{ie}		1.5		2.0	$\text{K}\Omega$
Output Conductance	h_{oe}		1.2		1.2	mmhos
Voltage Feedback Ratio	h_{re}		2.6		1.5	$\times 10^{-3}$