

# New Jersey Semi-Conductor Products, Inc.

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2N404

GERMANIUM TRANSISTOR

JEDEC TO-5 CASE

MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ )

	SYMBOL		UNITS
Collector-Base Voltage	$V_{CB0}$	25	V
Collector-Emitter Voltage (Punch-through)	$V_{pt}$	24	V
Emitter-Base Voltage	$V_{EBO}$	12	V
Collector Current	$I_C$	100	mA
Emitter Current	$I_E$	100	mA
Power Dissipation	PD	150	mW
Operating Junction Temperature	$T_j$	-65 TO +85	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 TO +100	$^\circ\text{C}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CB0}$	$V_{CB}=12\text{V}$		5.0	$\mu\text{A}$
$I_{CB0}$	$V_{CB}=12\text{V}$ , $T_A=80^\circ\text{C}$		90	$\mu\text{A}$
$I_{EBO}$	$V_{EB}=2.5\text{V}$		2.5	$\mu\text{A}$
$BV_{CB0}$	$I_C=20\mu\text{A}$	25		V
$BV_{EBO}$	$I_E=20\mu\text{A}$	12		V
$V_{CE}(\text{SAT})$	$I_C=12\text{mA}$ , $I_B=0.4\text{mA}$		0.15	V
$V_{CE}(\text{SAT})$	$I_C=24\text{mA}$ , $I_B=1.0\text{mA}$		0.20	V
$V_{BE}(\text{SAT})$	$I_C=12\text{mA}$ , $I_B=0.4\text{mA}$		0.35	V
$V_{BE}(\text{SAT})$	$I_C=24\text{mA}$ , $I_B=1.0\text{mA}$		0.40	V
$h_{FE}$	$V_{CE}=0.15\text{V}$ , $I_C=12\text{mA}$	30		-
$h_{FE}$	$V_{CE}=0.20\text{V}$ , $I_C=24\text{mA}$	24		-
$h_{fe}$	$V_{CE}=6\text{V}$ , $I_C=1\text{mA}$ , $f=1.0\text{kHz}$	135 typ		-
$h_{ie}$	$V_{CE}=6\text{V}$ , $I_C=1\text{mA}$ , $f=1.0\text{kHz}$	4.0 typ		$k\Omega$
$h_{oe}$	$V_{CE}=6\text{V}$ , $I_C=1\text{mA}$ , $f=1.0\text{kHz}$	50 typ		$\text{umho}$
$h_{re}$	$V_{CE}=6\text{V}$ , $I_C=1\text{mA}$ , $f=1.0\text{kHz}$	$7 \times 10^{-4}$ typ		-
$c_{ob}$	$V_{CB}=6\text{V}$ , $I_E=0$ , $f=1\text{MHz}$		20	pF
$f_{hfb}$	$V_{CB}=6\text{V}$ , $I_E=1\text{mA}$	4.0		MHz



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