

# New Jersey Semi-Conductor Products, Inc.

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**2N3764**

## Polarity PNP

### Features:

- General-purpose transistor for switching and amplifier applications.
- Housed in a TO-46 case.
- Also available in chip form using the 6706 chip geometry.



TO-46

### Maximum Ratings

$T_C = 25^\circ\text{C}$  unless otherwise specified

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	40	V
Collector-Base Voltage	$V_{CBO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	5.0	V
Collector Current, Continuous	$I_C$	1.5	mA
Operating Junction Temperature	$T_J$	-55 to +200	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to +200	$^\circ\text{C}$

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## Electrical Characteristics

$T_C = 25^\circ\text{C}$  unless otherwise specified

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_C = 10 \mu\text{A}$	$V_{(\text{BR})\text{CBO}}$	40	—	V
Collector-Emitter Breakdown Voltage $I_C = 10 \text{ mA}$	$V_{(\text{BR})\text{CEO}}$	40	—	V
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{A}$	$V_{(\text{BR})\text{EBO}}$	5.0	—	V
Collector-Emitter Cutoff Current $V_{EB} = 2.0 \text{ V}, V_{CE} = 20 \text{ V}$	$I_{\text{CEX}1}$	—	100	nA
Collector-Emitter Cutoff Current $V_{EB} = 2.0 \text{ V}, V_{CE} = 20 \text{ V}, T_A = 150^\circ\text{C}$	$I_{\text{CEX}2}$	—	150	$\mu\text{A}$
Collector-Base Cutoff Current $V_{CB} = 20 \text{ V}$	$I_{\text{CBO}}$	—	100	nA
Emitter-Base Cutoff Current $V_{EB} = 2.0 \text{ V}$	$I_{\text{EBO}}$	—	200	nA
ON Characteristics	Symbol	Min	Max	Unit
<i>Forward current Transfer Ratio</i>				
$I_C = 10 \text{ mA}, V_{CE} = 1.0 \text{ V}$	$h_{FE1}$	35	—	—
$I_C = 150 \text{ mA}, V_{CE} = 1.0 \text{ V}$ (pulse test)	$h_{FE2}$	40	—	—
$I_C = 500 \text{ mA}, V_{CE} = 1.0 \text{ V}$ (pulse test)	$h_{FE3}$	40	140	—
$I_C = 1.0 \text{ A}, V_{CE} = 1.5 \text{ V}$ (pulse test)	$h_{FE4}$	30	120	—
$I_C = 1.5 \text{ A}, V_{CE} = 5.0 \text{ V}$ (pulse test)	$h_{FE5}$	30	—	—
$I_C = 500 \text{ mA}, V_{CE} = 1.0 \text{ V}$ (pulsed), $T_A = -55^\circ\text{C}$	$h_{FE6}$	20	—	—
<i>Collector-Emitter Saturation Voltage</i>				
$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$ (pulse test)	$V_{CE(\text{sat})1}$	—	0.1	V dc
$I_C = 150 \text{ mA}, I_C = 15 \text{ mA}$ (pulse test)	$V_{CE(\text{sat})2}$	—	0.22	V dc
$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$ (pulse test)	$V_{CE(\text{sat})3}$	—	0.50	V dc
$I_C = 1.0 \text{ A}, I_C = 100 \text{ mA}$ (pulse test)	$V_{CE(\text{sat})4}$	—	0.90	V dc
<i>Base-Emitter Saturation Voltage</i>				
$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$	$V_{BE(\text{sat})1}$	—	0.8	V dc
$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ (pulse test)	$V_{BE(\text{sat})2}$	—	1.0	V dc
$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$ (pulse test)	$V_{BE(\text{sat})3}$	—	1.2	V dc
$I_C = 1.0 \text{ A}, I_B = 100 \text{ mA}$ (pulse test)	$V_{BE(\text{sat})4}$	—	1.4	V dc
Small Signal Characteristics	Symbol	Min	Max	Unit
<i>Magnitude of Common Emitter Short Circuit Forward Current Transfer Ratio</i>				
$I_C = 50 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$	$ h_{FE} $	1.8	6.0	—
<i>Open Circuit Output Capacitance</i>				
$V_{CB} = 10 \text{ V}, I_E = 0, 100 \text{ kHz} < f < 1 \text{ MHz}$	$C_{\text{OBO}}$	—	25	pF
<i>Input Capacitance, Output Open Circuited</i>				
$V_{EB} = 0.5 \text{ V}, I_C = 0, 100 \text{ kHz} < f < 1 \text{ MHz}$	$C_{\text{IBO}}$	—	80	pF