



Data Sheet No. 2N3765

Type 2N3765
Geometry 6706
Polarity PNP
Qual Level: JAN - JANTXV

Generic Part Number:
2N3765

REF: MIL-PRF-19500/396

Features:

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- General-purpose transistor for switching and amplifier applications.
- Housed in a [TO-46](#) case.
- Also available in chip form using the 6706 chip geometry.
- The Min and Max limits shown are per [MIL-PRF-19500/396](#) which Semicoa meets in all cases.



Maximum Ratings

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

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	60	V
Collector-Base Voltage	V_{CBO}	60	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	$^{\circ}\text{C}$

Electrical Characteristics

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

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_C = 10 \mu\text{A}$	$V_{(BR)CBO}$	60	---	V
Collector-Emitter Breakdown Voltage $I_C = 10 \text{mA}$	$V_{(BR)CEO}$	60	---	V
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{A}$	$V_{(BR)EBO}$	5.0	---	V
Collector-Emitter Cutoff Current $V_{EB} = 2.0 \text{V}, V_{CE} = 30 \text{V}$	I_{CEX1}	---	100	nA
Collector-Emitter Cutoff Current $V_{EB} = 2.0 \text{V}, V_{CE} = 30 \text{V}, T_A = 150^\circ\text{C}$	I_{CEX2}	---	150	μA
Collector-Base Cutoff Current $V_{CB} = 30 \text{V}$	I_{CBO}	---	100	nA
Emitter-Base Cutoff Current $V_{EB} = 2.0 \text{V}$	I_{EBO}	---	200	nA

ON Characteristics	Symbol	Min	Max	Unit
Forward current Transfer Ratio				
$I_C = 10 \text{mA}, V_{CE} = 1.0 \text{V}$	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	---	---
Collector-Emitter Saturation Voltage				
$I_C = 10 \text{mA}, I_B = 1 \text{mA}$ (pulse test)	$V_{CE(sat)1}$	---	0.1	V dc
$I_C = 150 \text{mA}, I_B = 15 \text{mA}$ (pulse test)	$V_{CE(sat)2}$	---	0.22	V dc
$I_C = 500 \text{mA}, I_B = 50 \text{mA}$ (pulse test)	$V_{CE(sat)3}$	---	0.50	V dc
$I_C = 1.0 \text{A}, I_B = 100 \text{mA}$ (pulse test)	$V_{CE(sat)4}$	---	0.90	V dc
Base-Emitter Saturation Voltage				
$I_C = 10 \text{mA}, I_B = 1 \text{mA}$	$V_{BE(sat)1}$	---	0.8	V dc
$I_C = 150 \text{mA}, I_B = 15 \text{mA}$ (pulse test)	$V_{BE(sat)2}$	---	1.0	V dc
$I_C = 500 \text{mA}, I_B = 50 \text{mA}$ (pulse test)	$V_{BE(sat)3}$	---	1.2	V dc
$I_C = 1.0 \text{A}, I_B = 100 \text{mA}$ (pulse test)	$V_{BE(sat)4}$	---	1.4	V dc

Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Common Emitter Short Circuit Forward Current Transfer Ratio $I_C = 50 \text{mA}, V_{CE} = 10 \text{V}, f = 100 \text{MHz}$	$ h_{FE} $	1.5	6.0	---
Open Circuit Output Capacitance $V_{CB} = 10 \text{V}, I_E = 0, 100 \text{kHz} < f < 1 \text{MHz}$	C_{OBO}	---	25	pF
Input Capacitance, Output Open Circuited $V_{EB} = 0.5 \text{V}, I_C = 0, 100 \text{kHz} < f < 1 \text{MHz}$	C_{IBO}	---	80	pF

Switching Characteristics Per Figure 1, MIL-S-19500/396D	Symbol	Min	Max	Unit
Pulse Delay Time	t_d	---	8	ns
Pulse Rise Time	t_r	---	35	ns
Pulse Storage Time	t_s	---	80	ns
Pulse Fall Time	t_f	---	35	ns

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