

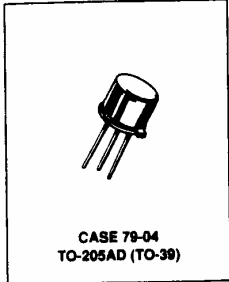
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**2N3506
2N3507**

CRYSTALONCS
2665 Veterans Highway
Suite 14
Ronkonkoma, N.Y. 11779

**NPN Silicon
Small-Signal Transistors**

designed for general-purpose switching applications.



MAXIMUM RATINGS				
Rating	Symbol	2N3506	2N3507	Unit
Collector-Emitter Voltage	V _{CEO}	40	50	Vdc
Collector-Base Voltage	V _{CBO}	60	80	Vdc
Emitter-Base Voltage	V _{EB0}	5.0		Vdc
Collector Current — Continuous	I _C	3.0		Adc
Power Dissipation	P _T	1.0		Watts
@ T _A = 25°C		5.71		mW/°C
Derate above 25°C		5.0		Watts
@ T _C = 25°C		28.6		W/°C
Derate above 25°C				
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-65 to 200		°C

ELECTRICAL CHARACTERISTICS (T _A = 25°C unless otherwise noted.)					
Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage ⁽¹⁾ (I _C = 10 mA, I _B = 0)	2N3506 2N3507	V _{(BR)CEO}	40 50	—	V _{dc}
Collector-Base Breakdown Voltage (I _C = 100 μA)	2N3506 2N3507	V _{(BR)CBO}	60 80	—	V _{dc}
Base-Emitter Breakdown Voltage (I _E = 10 μA)		V _{(BR)EBO}	5.0	—	V _{dc}
Collector Cutoff Current (V _{CE} = 40 Vdc, V _{EB} = 4.0 Vdc) (V _{CE} = 40 Vdc, V _{EB} = 4.0 Vdc, T _A = 150 °C) (V _{CE} = 60 Vdc, V _{EB} = 4.0 Vdc) (V _{CE} = 60 Vdc, V _{EB} = 4.0 Vdc, T _A = 150 °C)	2N3506 2N3507	I _{CEX}	— —	1.0 1500 1.0 1500	μA
ON CHARACTERISTICS⁽¹⁾					
DC Current Gain (I _C = 500 mA, V _{CE} = 1.0 Vdc) (I _C = 1.5 A, V _{CE} = 2.0 Vdc) (I _C = 2.5 A, V _{CE} = 3.0 Vdc) (I _C = 3.0 A, V _{CE} = 5.0 Vdc) (I _C = 0.5 A, V _{CE} = 1.0 Vdc, T _A = -55 °C) (I _C = 500 mA, V _{CE} = 1.0 Vdc) (I _C = 1.5 A, V _{CE} = 2.0 Vdc) (I _C = 2.5 A, V _{CE} = 3.0 Vdc) (I _C = 3.0 A, V _{CE} = 5.0 Vdc) (I _C = 0.5 A, V _{CE} = 1.0 Vdc, T _A = -55 °C)	2N3506 2N3507	h _{FE}	50 40 30 25 25 35 30 25 20 17	250 200 — — — 175 150 — — —	—
Collector-Emitter Saturation Voltage (I _C = 500 mA, I _B = 50 mA) (I _C = 1.5 A, I _B = 150 mA) (I _C = 2.5 A, I _B = 250 mA)		V _{CE(sat)}	— — —	0.5 1.0 1.5	V _{dc}
Base-Emitter Saturation Voltage (I _C = 500 mA, I _B = 50 mA) (I _C = 1.5 A, I _B = 150 mA) (I _C = 2.5 A, I _B = 250 mA)		V _{BE(sat)}	— 0.9 —	1.0 1.4 2.0	V _{dc}
SMALL-SIGNAL CHARACTERISTICS					
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 0.1 to 1.0 MHz)		C _{obo}	—	40	pF
Input Capacitance (V _{EB} = 3.0 Vdc, I _C = 0, f = 0.1 to 1.0 MHz)		C _{ibo}	—	300	pF
Small-Signal Current Transfer Ratio, Magnitude (I _C = 100 mA, V _{CE} = 5.0 Vdc, f = 20 MHz)		h _{fe}	3.0	15	—
SWITCHING CHARACTERISTICS (See Figure 9) (V _{CC} = 30 Vdc, I _C = 1.5 A, I _B = 150 mA)					
Delay Time		t _d	—	15	ns
Rise Time		t _r	—	30	ns
Storage Time		t _s	—	55	ns
Fall Time		t _f	—	35	ns

(1) Pulse, Pulse Width 250 to 300 μs, Duty Cycle 1:1 to 2:1

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2N3506JAN, 2N3507JAN SERIES

ASSURANCE TESTING (Pre/Post Burn-In)					
Burn-In Conditions: T _A = 25 ± 3°C, V _{CB} = 30 Vdc, P _T = 1.0 W					
Characteristics Tested	Symbol	Initial and End Point Limits		Unit	
		Min	Max		
Collector Cutoff Current (V _{EB} = 4.0 Vdc, V _{CE} = 40 Vdc) (V _{EB} = 4.0 Vdc, V _{CE} = 60 Vdc)	2N3506 2N3507	I _{CEX}	— —	1.0 1.0	μA
DC Current Gain ⁽¹⁾ (I _C = 1.5 A, V _{CE} = 2.0 Vdc)	2N3506 2N3507	h _{FE}	40 30	200 150	—
Delta from Pre-Burn-In Measured Values					
Delta Collector Cutoff Current		ΔI _{CEX}	—	±100 or ±0.2 whichever is greater	% of Initial Value μA
Delta DC Current Gain ⁽¹⁾		Δh _{FE}	—	±15	% of Initial Value

(1) Pulse, Pulse Width 250 to 360 μs, Duty Cycle 1:0 to 2:0%

