

**SEMICONDUCTOR  
TECHNICAL DATA**

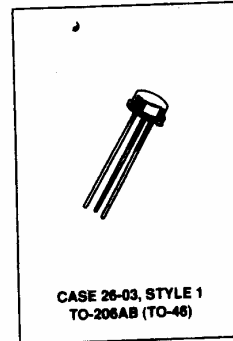
**2N3485A,  
2N3486A**

**PNP Silicon  
Small-Signal Transistors**

CRYSTALONCS  
2805 Veterans Highway  
Suite 14  
Ronkonkoma, N.Y. 11779

... designed for high-speed switching circuits and DC to VHF amplifier applications.

MAXIMUM RATINGS			
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	60	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	60	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	5.0	Vdc
Collector Current	I <sub>C</sub>	600	mAdc
Power Dissipation @ T <sub>A</sub> = 25°C	P <sub>T</sub>	0.4	Watts
Derate above 25°C		2.28	mW/°C
@ T <sub>C</sub> = 25°C		2.0	Watts
Derate above 25°C		11.43	mW/°C
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to 200	°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25°C unless otherwise noted.)				
Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage <sup>(1)</sup> (I <sub>C</sub> = 10 mAdc, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	60	—	Vdc
Collector-Base Breakdown Voltage (I <sub>C</sub> = 10 μAdc, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	60	—	Vdc
Base-Emitter Voltage (I <sub>E</sub> = 10 μAdc, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	5.0	—	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 50 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	—	10	nAdc
(V <sub>CB</sub> = 50 Vdc, I <sub>E</sub> = 0, T <sub>A</sub> = 150°C)		—	10	μAdc
Emitter Cutoff Current (V <sub>EB</sub> = 3.5 Vdc, I <sub>C</sub> = 0)	I <sub>EBO</sub>	—	50	nAdc

(1) Pulsed. Pulse Width 250 to 350 μs. Duty Cycle 1.0 to 2.0%.

(continued)

**2N3485AJAN, 2N3486AJAN SERIES**

ELECTRICAL CHARACTERISTICS — continued (T <sub>A</sub> = 25 °C unless otherwise noted)					
Characteristic	Symbol	Min	Max	Unit	
<b>ON CHARACTERISTICS</b>					
DC Current Gain (I <sub>C</sub> = 0.1 mA, V <sub>CE</sub> = 10 Vdc)	2N3485A	40	—	—	
	2N3486A	75	—	—	
(I <sub>C</sub> = 1.0 mA, V <sub>CE</sub> = 10 Vdc)	2N3485A	40	—	—	
	2N3486A	100	—	—	
(I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 10 Vdc)	2N3485A	40	—	—	
	2N3486A	100	—	—	
(I <sub>C</sub> = 150 mA, V <sub>CE</sub> = 10 Vdc) <sup>(1)</sup>	2N3485A	40	120	—	
	2N3486A	100	300	—	
(I <sub>C</sub> = 500 mA, V <sub>CE</sub> = 10 Vdc) <sup>(1)</sup>	2N3485A	40	—	—	
	2N3486A	50	—	—	
(I <sub>C</sub> = 1.0 mA, V <sub>CE</sub> = 10 Vdc, T <sub>A</sub> = -65 °C)	2N3485A	20	—	—	
	2N3486A	40	—	—	
Collector-Emitter Saturation Voltage <sup>(1)</sup> (I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA) (I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA)		V <sub>CE(sat)</sub>	—	0.4 1.6	Vdc
Base-Emitter Saturation Voltage <sup>(1)</sup> (I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA) (I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA)		V <sub>BE(sat)</sub>	—	1.3 2.6	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
Current Gain (I <sub>C</sub> = 1.0 mA, V <sub>CE</sub> = 10 Vdc, f = 1.0 kHz)	2N3485A 2N3486A	h <sub>fe</sub>	40 100	—	—
Small-Signal Current Transfer Ratio, Magnitude (I <sub>C</sub> = 50 mA, V <sub>CE</sub> = 20 Vdc, f = 100 MHz)		h <sub>fe</sub>	2.0	10	—
Output Capacitance (V <sub>CB</sub> = 10 Vdc, f = 0.1 to 1.0 MHz)		C <sub>obo</sub>	—	8.0	pF
Input Capacitance (V <sub>EB</sub> = 2.0 Vdc, f = 0.1 to 1.0 MHz)		C <sub>ibo</sub>	—	30	pF
<b>SWITCHING CHARACTERISTICS (See Figures 31 &amp; 39)</b>					
Turn-On Time	2N3485A 2N3486A	t <sub>on</sub>	—	175	ns
Turn-Off Time		t <sub>off</sub>	—	200	ns
Turn-On + Turn-Off Time (Non-Saturated Switching)		t <sub>on</sub> + t <sub>off</sub>	—	18	ns

ASSURANCE TESTING (Pre/Post Burn-In)				
Burn-In Conditions: T <sub>A</sub> = +25 °C, V <sub>CB</sub> = 30 Vdc				
P <sub>T</sub> = 400 mW				
Characteristics Tested	Symbol	Initial and End Point Limits		Unit
		Min	Max	
Collector Cutoff Current (V <sub>CB</sub> = 50 Vdc)	I <sub>CBO</sub>	—	10	nAdc
DC Current Gain <sup>(1)</sup> (I <sub>C</sub> = 150 mA, V <sub>CE</sub> = 10 Vdc)	2N3485A	40	120	—
	2N3486A	100	300	—
Delta from Pre-Burn-In Measured Values				
Delta Collector Cutoff Current	ΔI <sub>CBO</sub>	—	±100 or ±5.0 whichever is greater	% of Initial Value nAdc
Delta DC Current Gain <sup>(1)</sup>	Δh <sub>FE</sub>	—	±15	% of Initial Value

<sup>(1)</sup> Pulsed Pulse Width 250 to 350 μs Duty Cycle 1.0 to 2.0%