PPC, Inc.
Microsemi
Progress Powered by Technology

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2N3421

3 Amp, 125V, NPN Silicon Power Transistors JAN, JTX, JTXV, JANS

APPLICATIONS:

- **Power Supply**
- **Pulse Amplifier**
- **High Frequency Power Switching**

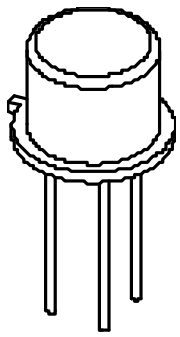
FEATURES:

- **Meets MIL-S-19500/393**
- **Collector-Base Voltage: up to 125**
- **Peak Collector Current: 5A**
- **High Power Dissipation in TO-5: 15W @ T_C = 100°C**
- **Fast Switching**

DESCRIPTION:

These power transistors are produced by PPC's DOUBLE DIFFUSED PLANAR process. This technology produces high voltage devices with excellent switching speeds, frequency response, gain linearity, saturation voltages, high current gain, and safe operating areas. They are intended for use in Commercial, Industrial, and Military power switching, amplifier, and regulator applications.

Ultrasonically bonded leads and controlled die mount techniques are utilized to further increase the SOA capability and inherent reliability of these devices. The temperature range to 200°C permits reliable operation in high ambients, and the hermetically sealed package insures maximum reliability and long life.



TO-5

SYMBOL			
V_{CBO}*	Collector-Base Voltage	125	Volts
V_{CEO}*	Collector-Emitter Voltage	80	Volts
V_{EBO}*	Emitter-Base Voltage	8	Volts
I_C*	D.C. Collector Current	3	Amps
I_C*	Peak Collector Current	5	Amps
T_{STG}*	Storage Temperature	-65 to 200	°C
T_J*	Operating Junction Temperature	-65 to 200	°C
P_T*	Power Dissipation		
	T_C = 25°C Ambient	1.0	Watts
	T_C = 100°C Case	15	Watts

* **Indicates MIL-S-19500/393**

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ELECTRICAL CHARACTERISTICS:
(25°Case Temperature Unless Otherwise Noted)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE Min.	VALUE Max.	Units
BV_{CEO*}	Collector-Emitter Breakdown Voltage	I_C = 50 mAdc, Cond. D (Note 1)	80	----	Vdc
I_{CEX}*	Collector-Emitter Cutoff Current	V_{EB} = 0.5 Vdc, Cond. A, V_{CE} = 120 Vdc	----	0.3	µAdc
		V_{EB} = 0.5 Vdc, Cond. A, T_A = 150°C, V_{CE} = 120 Vdc	----	50	µAdc
I_{CEO*}	Collector-Emitter Cutoff Current	V_{CE} = 60 Vdc, Cond. D	----	5.0	µAdc
I_{EBO}*	Emitter-Base Cutoff Current	V_{EB} = 6 Vdc, Cond. D	----	0.5	µAdc
		V_{EB} = 8 Vdc, Cond. D	----	10	µAdc
hFE*	D.C. Current Gain (Note 1)	I_C = 100 mAdc, V_{CE} = 2 Vdc	40	----	----
		I_C = 1 Adc, V_{CE} = 2 Vdc	40	120	----
		I_C = 2 Adc, V_{CE} = 2 Vdc	30	----	----
		I_C = 5 Adc, V_{CE} = 5 Vdc	15	----	----
		I_C = 1 Adc, V_{CE} = 2 Vdc, T_A = - 55°C	10	----	----
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage (Note 1)	I_C = 1 Adc, I_B = 0.1 Adc	----	0.25	Vdc
		I_C = 2 Adc, I_B = 0.2 Adc	----	0.5	Vdc
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage (Note 1)	I_C = 1 Adc, I_B = 0.1 Adc	0.6	1.2	Vdc
		I_C = 2 Adc, I_B = 0.2 Adc	0.7	1.4	Vdc
$I_{S/b*}$	Forward Biased Second Breakdown	V_{CE} = 5 Vdc, T_C = 100°C	3	----	Adc
		V_{CE} = 37 Vdc, T_C = 100°C	0.4	----	Adc
		V_{CE} = 80 Vdc, T_C = 100°C	120	----	mAdc
$E_{S/b*}$	Unclamped Reverse Biased Second Breakdown	I_C = 3 Adc, L = 10 mH, Base Open	45	----	mj
$E_{S/b*}$	Clamped Reverse Biased Second Breakdown	I_C = 3 Adc, L = 40 mH, V_{Clamp} = 125V	180	----	mj
f_T*	Gain Bandwidth Product	I_C = 0.1 Adc, V_{CE} = 10 Vdc, f = 20 MHz	26	160	MHz
C_{Ob}*	Output Capacitance	V_{CB} = 10 Vdc, I_E = 0, f = 1 MHz	----	150	pf
t_{on}	Turn-on Time	I_C = 1 Adc, I_{B1} = - I_{B2} = 0.1 Adc	----	0.3	µs
t_{off}	Turn-off Time	I_C = 1 Adc, I_{B1} = - I_{B2} = 0.1 Adc	----	1.2	µs

Note 1: Pulse Test: Pulse width = 300µSec., duty cycle ≤ 2%.

*** Indicates MIL-S-19500/393**

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PACKAGE MECHANICAL DATA: