PPC, Inc.
Microsemi
Progress Powered by Technology

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2N2880

5 Amp, 80V, Planar, NPN Power Transistors JAN,JTX,JANTXV,JANS

APPLICATIONS:

- Fast Switching
- High Frequency Switching and Amplifying

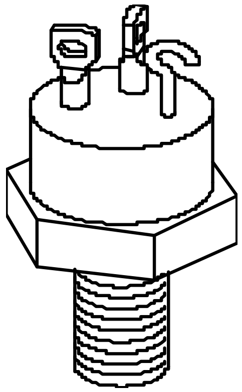
FEATURES:

- High Reliability
- Greater Gain Stability

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-59

ABSOLUTE MAXIMUM RATINGS

SYMBOL	CHARACTERISTIC	VALUE	UNITS
V_{CBO}*	Collector-Base Voltage	110	V
V_{CEO}*	Collector-Emitter Voltage	80	V
V_{EBO}*	Emitter-Base Voltage	8	V
I_C*	Continuous Collector Current	5	A
I_B*	Continuous Base Current	0.5	A
T_{STG}*	Storage Temperature	-65 to 200	°C
T_J*	Operating Junction Temperature	-65 to 200	°C
*	Lead Temperature 1/16" From Case for 10 Sec.	230	°C
P_T*	Power Dissipation		
	T_A = 25°C	2	W
	T_C = 100°C	30	W
θ JC	Thermal Resistance Junction to Case	3.33	°C/W

* Indicates MIL-S-19500/315

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ELECTRICAL CHARACTERISTICS
(25°Case Temperature Unless Otherwise Noted)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE		Units
			Min.	Max.	
BV_{CBO}*	Collector-Base Voltage	I_C = 10 μAdc, Cond. D	110	----	Vdc
BV_{CEO}*	Collector-Emitter Voltage (Note 1)	I_C = 0.1 Adc, Cond. D	80	----	Vdc
BV_{EBO}*	Emitter-Base Voltage	I_E = 10 μAdc, Cond. D	8	----	Vdc
I_{CEO}*	Collector-Emitter Cutoff Current	V_{CE} = 60 Vdc, Cond. D	----	20	μAdc
I_{CEX}*	Collector-Emitter Cutoff Current	V_{CE} = 110 Vdc, V_{EB} = 0.5 Vdc, Cond. A V_{CE} = 80 Vdc, V_{EB} = 0.5 Vdc, Cond. A, T_A = 150°C	---- ----	1.0 50	μAdc μA
I_{CBO}*	Collector-Base Cutoff Current	V_{CB} = 80 Vdc, Cond. D V_{CB} = 60 Vdc, Cond. D, T_A = - 150°C	---- ----	0.2 10	μAdc ----
I_{EBO}*	Emitter-Base Cutoff Current	V_{EB} = 6 Vdc, Cond. D	----	0.2	μAdc
hFE*	DC Current Gain (Note 1)	I_C = 50 mAdc, V_{CE} = 5 Vdc I_C = 1 Adc, V_{CE} = 5 Vdc I_C = 5 Adc, V_{CE} = 5 Vdc I_C = 1 Adc, V_{CE} = 5 Vdc, T_A = - 55°C	40 40 15 15	120 120 ---- ----	---- ---- ---- ----
hFE*	AC Current Gain	I_C = 50 mAdc, V_{CE} = 5 Vdc, f = KHz	40	120	----
$V_{CE(sat)}$*	Collector Saturation Voltage (Note 1)	I_C = 1 Adc, I_B = 0.1 Adc I_C = 5 Adc, I_B = 0.5 Adc	---- ----	0.25 1.5	Vdc Vdc
$V_{BE(sat)}$*	Base Saturation Voltage (Note 1)	I_C = 1 Adc, I_B = 0.1 Adc	----	1.2	Vdc
$V_{BE(on)}$*	Base On-Voltage (Note 1)	I_C = 1 Adc, V_{CE} = 2 Vdc	----	1.2	Vdc
f_T*	Gain-Bandwidth Product	I_C = 1 Adc, V_{CE} = 10 Vdc, f = 10 MHz	30	120	MHz
C_{ob}*	Output Capacitance	V_{CB} = 10 Vdc, 1_E = 0, f = 1 MHz	----	150	pf
td*	Delay Time	I_C = 1 A, I_{B1} = I_{B2} = 100 ma	----	60	ns
tr*	Rise Time	I_C = 1 A, I_{B1} = I_{B2} = 100 ma	----	300	ns
ts*	Storage Time	I_C = 1 A, $I_{B1,}$ = I_{B2} = 100 ma	----	1.7	μs
tf*	Fall Time	I_C = 1 A, I_{B1} = I_{B2} = 100 ma	----	300	ns
$I_{S/B}$*	Forward-Biased Second Breakdown	V_{CE} = 20 Vdc, t = 10 Sec, T_C = 100°C V_{CE} = 80 Vdc, t = 10 Sec, T_C = 100°C	1.5 80	---- ----	Adc mAdc
$E_{S/B}$*	Clamped Reverse-Biased Second Breakdown	I_C = 5 A, L = 1 mH, V_{Clamp} = 110 V, T_C = 100°C I_B = 0.5 A, R_{BB2} = 20Ω, V_{BB2} = -3.0V	12.5	----	mj
$E_{S/B}$*	Unclamped Reverse-Biased Second Breakdown	I_C = 5 A, L = 1 mH, Base Open I_C = 1.6 A, L = 10 mH, Base Open	12.5 12.8	---- ----	mj mj

Note 1: Pulse Test: PW = 300μs, Duty Cycle ≤ 2%.

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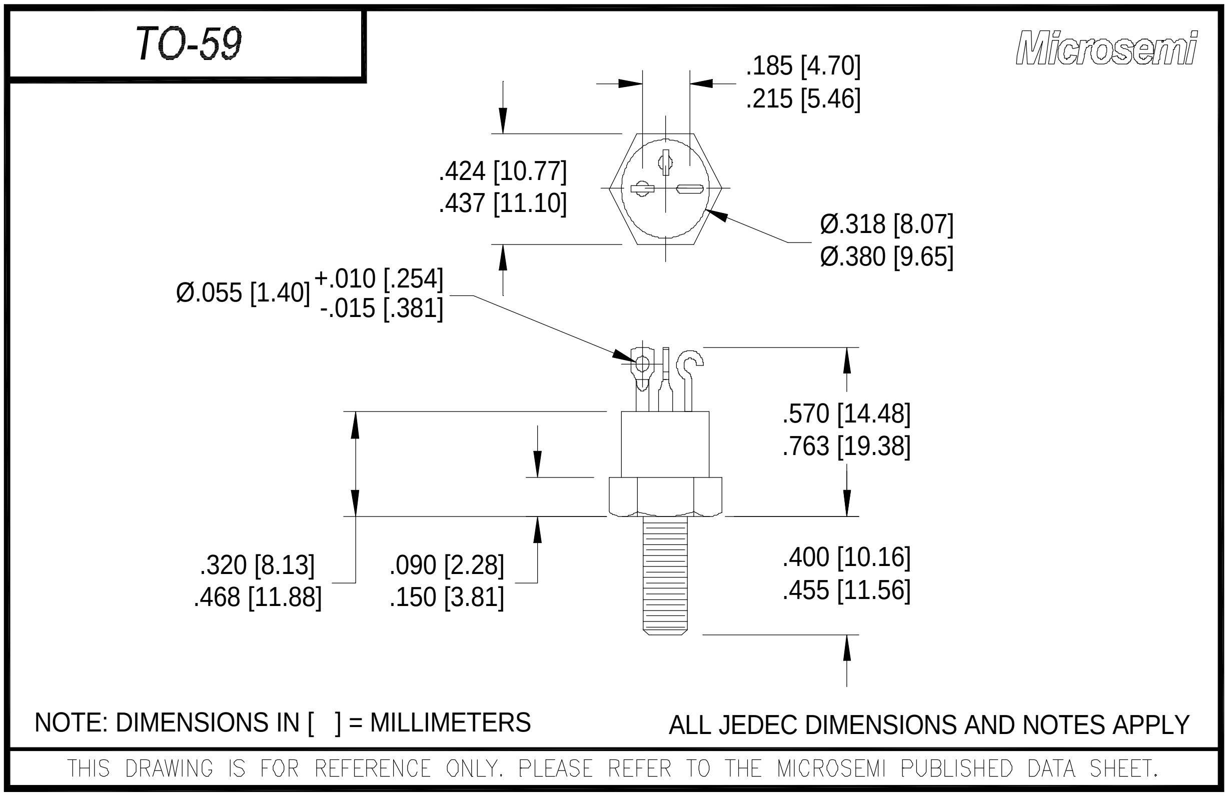
PACKAGE MECHANICAL DATA



NOTE: DIMENSIONS IN [ ] = MILLIMETERS

ALL JEDEC DIMENSIONS AND NOTES APPLY

THIS DRAWING IS FOR REFERENCE ONLY. PLEASE REFER TO THE MICROSEMI PUBLISHED DATA SHEET.