New Jersey Semi-Conductor Products, Inc.

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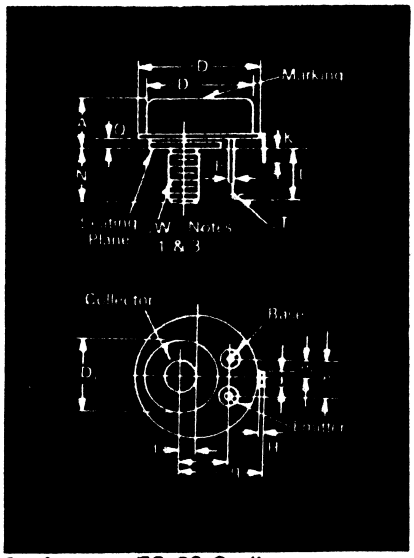
NPN Power, Darlington TRANSISTORS 2N2226-33

10 Ampere 50 — 200 Volts

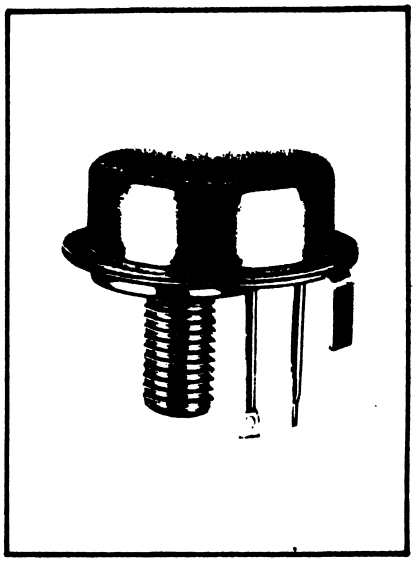


Conforms to TO-82 Outline

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	.500	.560	12.70	14.22
ϕB	.045	.060	1.14	1.52
d	.140	.170	3.56	4.32
ϕD	1.240	1.280	31.50	32.51
ϕD,	.730	.770	18.54	19.56
ϕD,		1.125		28.58
e	.360	.400	9.14	10.16
e,	.180	.200	4.57	5.08
H	.014	.025	.36	.64
j	.140	.170	3.56	4.32
K	.130	.190	3.30	4.83
L	.550	.590	13.97	14.99
N	.550	.590	13.97	14.99
q	.810	.850	20.57	21.59
Q	.105	.140	2.67	3.56
S	.480	.520	12.19	13.21
ϕT	.050	.070	1.27	1.78
ϕW	9/16-24 UNF-2A			

Finish—Nickel Plate.
Approx. Weight—.9 oz. (25 g).

1. Complete threads to extend to within 2½ threads of seating plane.
2. Contour and angular orientation of terminals is undefined.
3. Pitch diameter of 9/16-24 UNF-2A (coated) threads (ASA B1.1-1960).



Features

- Gold Alloy Process
- No forward bias secondary breakdown to 100 volts
- High reverse bias S.O.A. for inductive loads
- Low thermal resistance with copper base
- 150 watt dissipation
- Protection from thermal fatigue with hard solder and molybdenum construction
- 25 volt V_{EBO}
- Low $V_{CE(sat)}$
- Lifetime Guarantee

Applications

- High Power Switching
- Amplifiers
- Servo Systems
- Regulators
- Modulators

Test	Symbol	2N2226 2N2230	2N2227 2N2231	2N2228 2N2232	2N2229 2N2233
Collector Voltage Sustaining	$V_{CEO(sus)}$	50	100	150	200

Quality Semi-Conductors

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10 Ampere
50 — 200 Volts

Maximum Ratings and Characteristics Tc = 25°C unless specified	Symbol	JEDEC 2N2226-33	Units
* Operating and storage temperature		—65 To 150	°C
Collector-emitter sustaining voltage	$V_{CEO(sus)}$	50 To 200	Volts
* Emitter-base voltage	V_{EBO}	15	Volts
* Continuous collector current	I_C	10	AMPS
* Continuous base current	I_B	1	AMPS
* Thermal resistance	$R_{\theta JC}$	.5	°C/W
* Power dissipation Tc = 75°C	P_T	150	Watts
Power dissipation Tc = 100°C	P_T	100	Watts

* JEDEC Registered Parameters

Electrical Characteristics 2N2226-29 — T_C=25°C unless otherwise specified

	Symbol	Minimum	Typical	Max.	Units
Collector current at $V_{CEX}=V_{CE}$ (from max. ratings), T_C=150°C, V_{BE}=−1.5 Vdc	I_{CEX}	...	.....	20	mAdc
Emitter current at V_{BE}=−15 Vdc, I_C=0	I_{EBO}	...	.....	15	mAdc
Emitter current at V_{BE}=−15 Vdc, I_C=0, T_C=150°C	I_{EBO}	...	.....	30	mAdc
Gain bandwidth product at I_C=10 Adc	f_T	...	500	.....	kc
Saturation voltage at I_C=10 Adc, I_B=150m Adc	$V_{CE(sat)}$	...	2.2	3.5	Vdc
Dc current gain at V_{CE}=6 Vdc, I_C=10 Adc	h_{FE}	100	360	....	.....
Base voltage, at I_C=10 Adc, I_B=150 mAdc	V_{BE} (sat)	...	3.0	4.0	Vdc
Beta cut-off frequency at V_{CE}=12 Vdc, I_C=7 Adc	f_{hfe}	...	10	.....	kc
Turn-on time at I_C=10 Adc, $I_{B\ on}$=400 mAdc, V_{CE}=12 Vdc	t_d+t_r	...	4.5	.....	μsec
Turn-off time at I_C=10 Adc, $I_{B\ off}$=−400 mAdc, V_{CE}=12 Vdc, $V_{BE\ off}$=−15 Vdc.	t_s+t_f	...	25	.....	μsec

Electrical Characteristics 2N2230-33 — T_C=25°C unless otherwise specified

	Symbol	Minimum	Typical	Max.	Units
Collector current at $V_{CEX}=V_{CE}$ (from max. ratings), T_C=150°C, V_{BE}=−1.5 Vdc	I_{CEX}	...	.....	20	mAdc
Emitter current at V_{BE}=−15 Vdc, I_C=0	I_{EBO}	...	.....	15	mAdc
Emitter current at V_{BE}=−15 Vdc, I_C=0, T_C=150°C	I_{EBO}	...	.....	30	mAdc
Gain bandwidth product at I_C=10 Adc	f_T	...	500	.....	kc
Saturation voltage at I_C=10 Adc, I_B=150m Adc	$V_{CE(sat)}$	...	2.2	3.5	Vdc
Dc current gain at V_{CE}=6 Vdc, I_C=10 Adc	h_{FE}	400	660	.....	.....
Base voltage, at I_C=10 Adc, I_B=40 mAdc	V_{BE} (sat)	...	3.0	4.0	Vdc
Beta cut-off frequency at V_{CE}=12 Vdc, I_C=7 Adc	f_{hfe}	...	7	.....	kc
Turn-on time at I_C=10 Adc, $I_{B\ on}$=200 mAdc, V_{CE}=12 Vdc	t_d+t_r	...	5	.....	μsec
Turn-off time at I_C=10 Adc, $I_{B\ off}$=−200 mAdc, V_{CE}=12 Vdc, $V_{BE\ off}$=−15 Vdc.	t_s+t_f	...	29	.....	μsec

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