

8514019 SPRAGUE. SEMICONDUCTORS/ICS

93D 03587 D. T-27-90

PLASTIC-CASE BIPOLAR TRANSISTORS

NPN Transistors

'2N' and 'TP' Device Types

ELECTRICAL CHARACTERISTICS at T_A = 25°C

Device Type	I _C Max. (mA)	V _{(BR)CBO} (V)	V _{(BR)CEO} (V)	V _{(BR)EBO} (V)	I _{CBO}		DC Current Gain				V _{CE(sat)}		f _T		C _{ob} ¹ (pF)	t _s ¹ (ns)	NF ¹ (dB)	Process
					Max. (nA)	@V _{CB} (V)	h _{FE} Min.	h _{FE} Max.	@I _C (mA)	@V _{CE} (V)	Max. (V)	@I _C (mA)	Min. (MHz)	@I _C (mA)				
2N3904	100	60	40	6.0	50	30	100	300	10	1.0	0.2	10	300	10	4.0	—	5.0	FFB
2N3974	500	60	30	5.0	500	40	55	200	10	1.0	0.3	150	—	—	—	—	—	JGA
2N3976	500	60	30	5.0	500	40	55	200	10	1.0	0.3	150	—	—	—	—	7.0	JGA
TP4013	800	50	30	6.0	1700	40	60	150	100	1.0	0.2	100	300	50	12	60	—	BHB
TP4014	800	80	50	6.0	1700	60	60	150	100	1.0	0.26	100	300	50	10	60	—	BHB
2N4123	100	40	30	5.0	50	20	50	150	2.0	1.0	0.3	50	250	10	4.0	—	6.0	FEE
2N4124	100	30	25	5.0	50	20	120	360	2.0	1.0	0.3	50	300	10	4.0	—	5.0	FEE
2N4140	500	60	30	5.0	—	—	40	120	150	10	0.4	150	250	20	8.0	310	—	DCA
2N4141	500	60	30	5.0	—	—	100	300	150	10	0.4	150	250	20	8.0	310	—	DCA
2N4286	100	30	25	6.0	50	25	150	600	1.0	5.0	0.35	1.0	40	1.0	6.0	—	—	FEE
2N4287	100	45	45	7.0	10	30	150	600	1.0	5.0	0.35	1.0	40	1.0	6.0	—	5.0	FEE
2N4292	50	30	15	3.0	500	15	20	—	3.0	1.0	0.6	10	600	4.0	3.5	—	6.0	DMA
2N4293	50	30	15	3.0	500	15	20	—	3.0	1.0	0.6	10	600	4.0	3.5	—	6.0	DMA
TP4384	500	40	30	5.0	10	30	100	500	0.01	5.0	0.2	10	30	0.5	8.0	—	2.0	JGA
TP4386	500	40	30	5.0	10	30	40	500	0.01	5.0	0.2	10	30	0.5	8.0	—	3.0	JGA
2N4400	500	60	40	6.0	100	30	50	150	150	1.0	0.4	150	200	20	6.5	225	—	DCA
2N4401	500	60	40	6.0	100	30	100	300	150	1.0	0.4	150	250	20	6.5	225	—	DCA
2N4409	100	80	50	5.0	10	60	60	400	10	1.0	0.2	1.0	60	10	12	—	—	FEE
2N4410	100	120	80	5.0	10	100	60	400	10	1.0	0.2	1.0	60	10	12	—	—	FEE
2N4424	500	40	40	5.0	100	25	180	540	2.0	4.5	0.3	50	—	—	—	—	—	JGA
TP4926	500	200	200	7.0	100	100	20	200	30	10	—	—	30	20	6.0	—	—	BLA
TP4927	500	250	250	7.0	100	100	20	200	30	10	—	—	30	20	6.0	—	—	BLA
2N4944	500	75	40	6.0	10	60	100	300	150	10	0.3	150	300	20	8.0	225	—	DCA
2N4945	500	75	40	6.0	10	60	100	300	150	10	0.3	150	300	20	8.0	225	—	DCA
2N4946	500	75	40	6.0	10	60	100	300	150	10	0.3	150	300	20	8.0	225	—	DCA
2N4951	500	60	30	5.0	50	40	60	200	150	10	0.3	150	250	20	8.0	400	—	DCA
2N4952	500	60	30	5.0	50	40	100	300	150	10	0.3	150	250	20	8.0	400	—	DCA
2N4953	500	60	30	5.0	50	40	200	600	150	10	0.3	150	250	20	8.0	400	—	DCA
2N4954	500	40	30	5.0	50	30	60	600	150	10	0.3	150	250	20	8.0	400	—	DCA
2N4966	100	50	50	—	50	35	100	300	0.1	5.0	0.7	10	30	0.5	4.0	—	4.0	FEE
2N4967	100	50	50	—	50	35	200	600	0.1	5.0	0.7	10	30	0.5	4.0	—	3.0	FEE
2N4968	100	50	50	—	50	35	100	300	0.1	5.0	0.7	10	30	0.5	4.0	—	4.0	FEE
2N4969	500	60	30	5.0	10	50	40	120	150	10	0.4	150	250	20	8.0	—	—	JGA
2N4970	500	60	30	5.0	10	50	100	300	150	10	0.4	150	250	20	8.0	—	—	JGA
TP5058	150	300	300	7.0	50	100	35	150	30	25	1.0	30	30	10	10	—	—	BLA
TP5059	150	250	250	6.0	50	100	30	150	30	25	1.0	30	30	10	10	—	—	BLA
2N5088	100	35	30	—	50	20	300	900	0.1	5.0	0.5	10	—	—	4.0	—	3.0	FEE
2N5089	100	30	25	—	50	15	400	1200	0.1	5.0	0.5	10	—	—	4.0	—	2.0	FEE
TP5127	100	20	12	3.0	50	10	15	300	2.0	10	0.3	10	150	2.0	3.5	—	—	FFB
2N5128	500	15	12	3.0	50	10	35	350	50	10	0.25	150	200	50	10	—	—	JGA
2N5129	500	15	12	3.0	50	10	35	350	50	10	0.25	150	200	50	10	—	—	JGA
2N5130	50	30	12	1.0	50	10	15	250	8.0	10	0.6	10	450	8.0	1.7	—	—	DMA

NOTES:
1) Maximum at typical JEDEC conditions.
2) μ A.

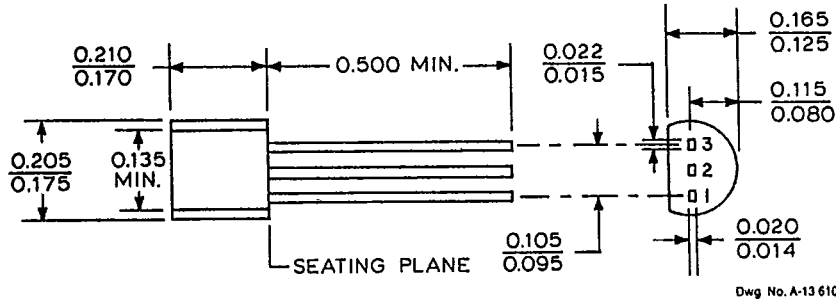
3) V_{(BR)CES}/I_{CES}, as applicable.
4) mA.
5) V_{(BR)CER} at R = 10 Ω .

T-91-20

PACKAGE INFORMATION

TO-226AA/STYLE CT

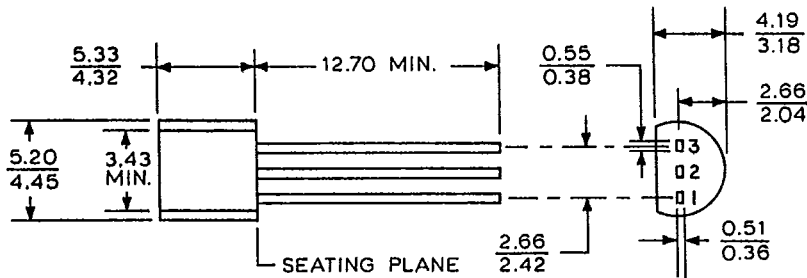
DIMENSIONS IN INCHES



Dwg. No. A-13.610

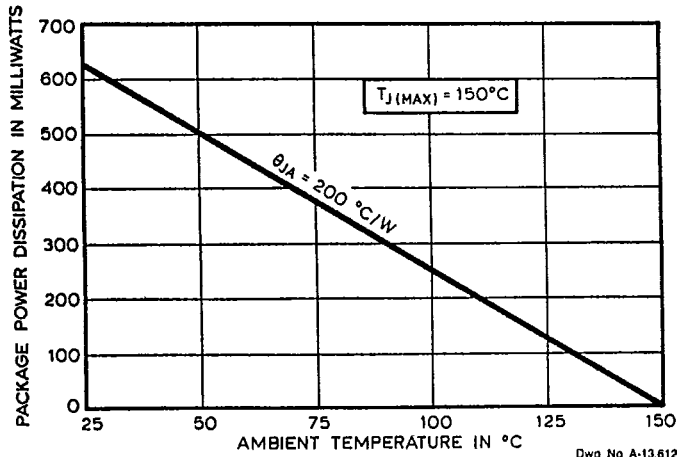
DIMENSIONS IN MILLIMETERS

Based on 1" = 25.4 mm



Dwg. No. A-13.611

MAXIMUM ALLOWABLE PACKAGE POWER DISSIPATION AS A FUNCTION OF AMBIENT TEMPERATURE



Dwg No A-13.612



CT PINOUT

Pin	Terminal
1	Emitter
2	Base
3	Collector

3044

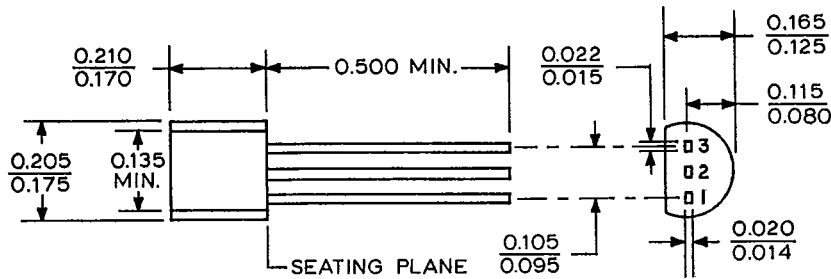
A-01

7-R

T-91-20
PACKAGE INFORMATION

TO-226AA/STYLE CZ

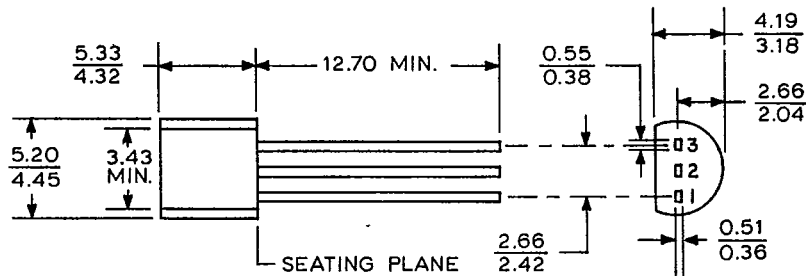
DIMENSIONS IN INCHES



Dwg No. A-13,610

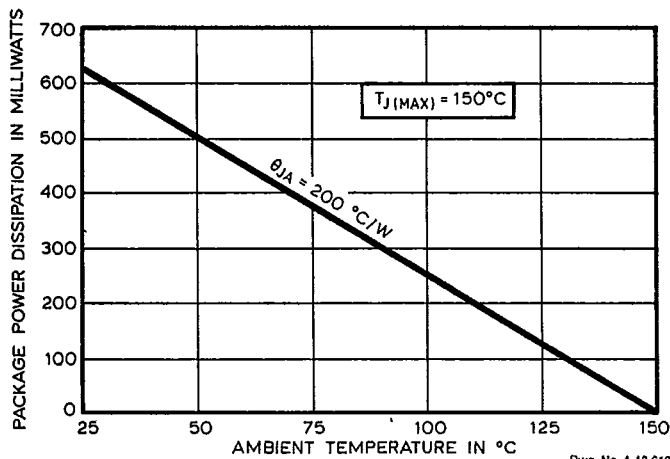
DIMENSIONS IN MILLIMETERS

Based on 1" = 25.4 mm



Dwg. No. A-13,611

MAXIMUM ALLOWABLE PACKAGE POWER DISSIPATION AS A FUNCTION OF AMBIENT TEMPERATURE



Dwg No A-13 612



CZ PINOUT

Pin	Terminal
1	Emitter
2	Collector
3	Base