

**NPN Darlington Transistors TO-204MA (TO-3)**

T-03-01

Part Number	Ic Amps	V <sub>CEO</sub> (SUS) Volts	V <sub>CE</sub> (SAT) Volts	h <sub>FE</sub> (Typical)	Switch Time			P <sub>d</sub> Watts	Circuit Diagram	Technical Publication
					t <sub>r</sub>	t <sub>s</sub>	t <sub>f</sub>			
PTC 10002 PTC 10003	10	350 400	1.9	30-300	0.6	3.0	1.5	150	A	PTC 10002/03
PTC 10006 PTC 10007	10	350 400	1.9	30-300	0.6	1.5	0.5	150	B	PTC 10006/07
PTC 6251 PTC 6252 PTC 6253	10	350 400 450	2.0	10-120	0.4	2.5	1.0	150	C	Consult Factory
PTC 6000 PTC 6001	15	300 350	2.0	40-160	0.4	2.5	1.0	125	C	PTC 6000/03
PTC 6002 PTC 6003	15	400 500	2.0	40-160	0.4	2.5	1.0	125	C	PTC 6000/03
PTC 10000 PTC 10001	20	350 400	1.9	50-600	0.6	3.5	2.4	175	A	PTC 10000/01
PTC 10004 PTC 10005	20	350 400	1.9	50-600	0.6	1.5	0.5	175	B	PTC 10004/05
PTC 10008 PTC 10009	20	450 500	2.0	40-400	1.5	2.0	0.6	175	B	PTC 10008/09
PTC 6060 PTC 6061 PTC 6062 PTC 6063	20	300 350 400 500	1.5	30-120	0.4	2.5	1.0	125	C	PTC 6060/63
PTC 9000 PTC 9001 PTC 9002	20	750 850 900	2.0	20	3.0	6.0	3.0	125	C	PTC 9000/02
PTC 6022 PTC 6023	30	350 400	2.0	50-750	0.4	6.5	1.0	125	C	PTC 6022/6023
PTC 6072 PTC 6073	40	350 400	2.0	50-250	0.4	6.5	1.0	125	B	PTC 6072/6073
PTC 10022 PTC 10023	40	350 400	2.2	50-600	1.2	2.5	0.9	250	B	PTC 10022/23
PTC 10015 PTC 10016	50	400 500	2.2	25	1.0	2.5	1.0	250	B	PTC 10015/16
PTC 7000 PTC 7001 PTC 7002 PTC 7003	50	300 350 400 500	2.0	40-120	0.4	2.5	0.7	175	C	PTC 7000/03
PTC 10020 PTC 10021	60	200 250	2.2	75-1000	1.0	3.5	0.5	250	B	PTC 10020/21

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PTC 401	2	300	2.0	20-100	—	—	0.8	75	—	PTC 401/402
PTC 413	2	325	0.8	20-80	0.25	2.5	0.8	75	—	PTC 413/423
PTC 410	3.5	200	0.8	30-90	0.25	2.5	0.8	100	—	PTC 410/411
PTC 411	3.5	300	0.8	30-90	0.25	2.5	0.8	100	—	PTC 410/411
PTC 402	3.5	325	2.0	20-100	—	—	0.8	100	—	PTC 401/402
PTC 403	3.5	325	2.0	20-100	—	—	0.8	100	—	PTC 403/409
PTC 409	3.5	325	2.0	20-100	0.25	2.5	0.8	100	—	PTC 403/409
PTC 423	3.5	325	0.8	20-80	0.25	2.5	0.8	100	—	PTC 413/423
PTC 424	3.5	350	0.8	30-90	0.25	2.5	0.8	100	—	PTC 424/425
PTC 425	3.5	400	0.8	30-90	0.25	2.5	0.8	100	—	PTC 424/425
PTC 430	7	300	0.9	15-45	0.4	2.5	0.8	125	—	PTC 430/431
PTC 431	7	325	0.7	15-35	0.4	2.5	0.8	125	—	PTC 430/431
PTC 484	10	700	2.0	7.5	2.0	4.0	2.0	175	—	*
PTC 485	10	800	2.0	7.5	2.0	4.0	2.0	175	—	*
2N6674	10	300	1.0	8-20	0.6	2.5	0.5	175	—	2N6674/75
2N6675	10	400	1.0	8-20	0.6	2.5	0.5	175	—	2N6674/75
2N6676	15	300	1.5	8-20	0.6	2.5	0.5	175	—	2N6676/78
2N6677	15	350	1.5	8-20	0.6	2.5	0.5	175	—	2N6676/78
2N6678	15	400	1.5	8-20	0.6	2.5	0.5	175	—	2N6676/78
PTC 6679	30	300	1.5	8-20	0.6	2.5	0.5	230	—	PTC6679/81
PTC 6680	30	350	1.5	8-20	0.6	2.5	0.5	230	—	PTC6679/81
PTC 6681	30	400	1.5	8-20	0.6	2.5	0.5	230	—	PTC6679/81
PTC 6682	40	300	1.5	8-20	0.6	2.5	0.5	230	—	PTC6682/83
PTC 6683	40	350	1.5	8-20	0.6	2.5	0.5	230	—	PTC6682/83

\* Consult Factory

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**NPN Transistors TO-247**

Part Number	Ic Amps	VCE(SUS) Volts	VCE(SAT) Volts	hFE (Typical)	Switch Time S			Pd Watts	Circuit Diagram	Technical Publication
					tr	ts	tr			
PTC 401P	2	300	2.0	20-100	—	—	0.8	75	—	*
PTC 413P	2	325	0.8	20-80	0.25	2.5	0.8	75	—	*
PTC 410P	3.5	200	0.8	30-90	0.25	2.5	0.8	100	—	*
PTC 411P	3.5	300	0.8	30-90	0.25	2.5	0.8	100	—	*
PTC 402P	3.5	325	2.0	20-100	—	—	0.8	100	—	*
PTC 403P	3.5	325	2.0	20-100	—	—	0.8	100	—	*
PTC 409P	3.5	325	2.0	20-100	0.25	2.5	0.8	100	—	*
PTC 423P	3.5	325	0.8	20-80	0.25	2.5	0.8	100	—	*
PTC 424P	3.5	350	0.8	30-90	0.25	2.5	0.8	100	—	*
PTC 425P	3.5	400	0.8	30-90	0.25	2.5	0.8	100	—	*
PTC 430P	7	300	0.9	15-45	0.4	2.5	0.8	125	—	*
PTC 431P	7	325	0.7	15-35	0.4	2.5	0.8	125	—	*
PTC 484P	10	700	2.0	7.5	2.0	4.0	2.0	125	—	*
PTC 485P	10	800	2.0	7.5	2.0	4.0	2.0	125	—	*
PTC 6674P	10	300	1.0	8-20	0.6	2.5	0.5	125	—	*
PTC 6675P	10	400	1.0	8-20	0.6	2.5	0.5	125	—	*
PTC 6676P	15	300	1.5	8-20	0.6	2.5	0.5	125	—	*
PTC 6677P	15	350	1.5	8-20	0.6	2.5	0.5	125	—	*
PTC 6678P	15	400	1.5	8-20	0.6	2.5	0.5	125	—	*

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PTC 10000P PTC 10001P	20	350 400	1.9	50-600	0.6	3.5	2.4	125	A	PTC 10000/01P
PTC 10002P PTC 10003P	10	350 400	2.0	30-300	0.6	3.0	1.5	125	A	PTC 10002/03P

**NPN Powermode Transistors**

PTC 8003 PTC 8004 PTC 8005	50	350	1.5	8-20	0.6	2.5	0.5	580	Isolated Collector	*
PTC 8000 PTC 8001 PTC 8002	60	350	1.5	8-20	0.6	2.5	0.5	580	Isolated Collector	*

\* Consult Factory

**Fast Recovery Rectifiers**

Part Number	Io Amps	Vr Volts	IFSM Amps	Vf Volts	t <sub>rr</sub> nS	Case Type	Technical Publication
PTC 862 PTC 864 PTC 866	40	200 400 600	600	1.5	500	DO-5	PTC 862/66
PTC 872 PTC 874 PTC 876	50	200 400 600	600	1.5	500	DO-5	PTC 872/76
PTC 920 PTC 921 PTC 922 PTC 923	50	900 1000 1100 1200	600	1.5	500	DO-5	PTC 920/23
PTC 940 PTC 941 PTC 942 PTC 943	100	900 1000 1100 1200	2200	1.5	575	DO-8	PTC 940/43

For specific test conditions and performance specifications, refer to the Referenced Technical Publication.

**Powermode Fast Recovery Rectifiers**

PTC 700 PTC 701 PTC 702	100	1000 1100 1200	600	1.5	600	Isolated Anode	*
PTC 710 PTC 711 PTC 712	125	1000 1100 1200	600	1.5	600	Isolated Anode	*

\* Consult Factory

**Circuit Diagrams**

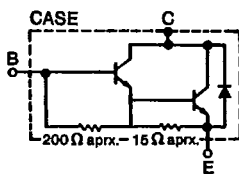


Diagram A

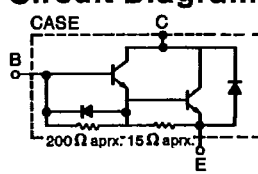


Diagram B

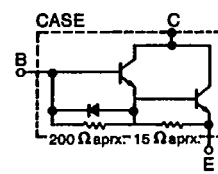


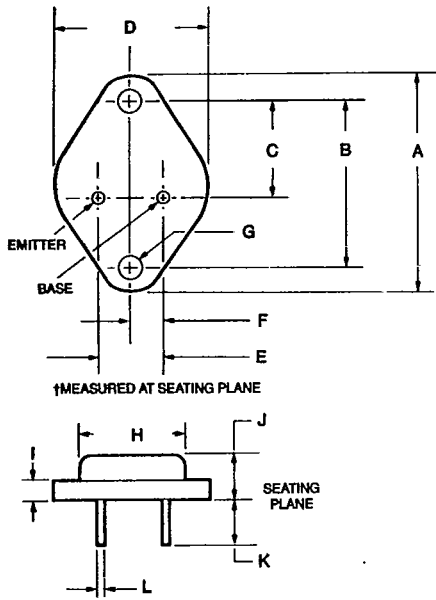
Diagram C

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T-33-01  
T-03-01

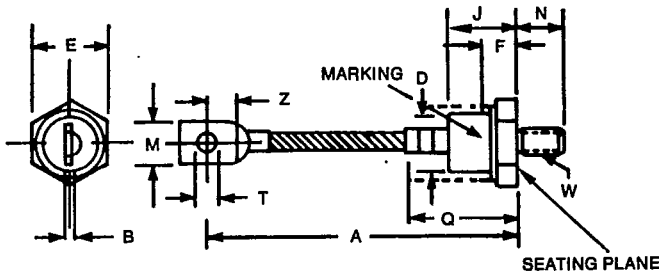
**Dimensions**

**Transistors TO-204MA (Formerly TO-3)**



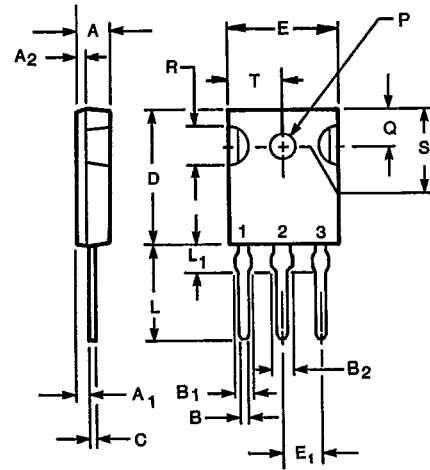
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.95	—	1.573
B	29.90	30.40	1.177	1.197
C	16.64	17.15	0.655	0.675
D	—	26.67	—	1.050
E	10.67	11.18	0.420	0.440
F	6.21	6.72	0.205	0.225
ØG	3.84	4.09	0.151	0.161
ØH	—	22.23	—	0.875
I	—	3.43	—	0.135
J	6.35	11.43	0.250	0.450
K	8.13	—	0.32	—
ØL	0.97	1.09	0.038	0.043

**Rectifiers DO-8**



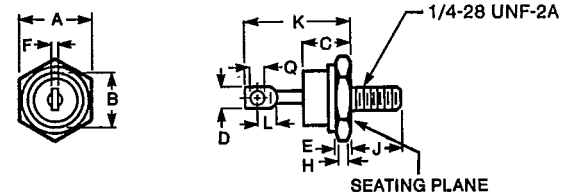
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	98.43	117.47	3.875	4.625
B	2.03	3.05	.080	.120
ØD	21.97	22.86	.865	.900
E	26.19	27.00	1.031	1.063
F	7.37	7.87	.290	.310
J	22.10	23.88	.870	.940
M	11.10	16.51	.437	.650
N	15.37	16.38	.605	.645
Q	—	42.54	—	1.675
ØT	5.33	7.87	.210	.310
Z	7.62	—	.300	—
ØW	¾-24 UNF-2A			

**Plastic Transistor TO-247**



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.70	5.31	.185	.209
A	2.21	2.59	.087	.102
A	1.50	2.49	.059	.098
B	1.02	1.40	.040	.055
B	2.01	2.39	.079	.094
B	3.00	3.38	.118	.133
C	0.41	0.79	.016	.031
D	19.71	20.29	.776	.799
E	15.29	15.88	.602	.625
E <sub>1</sub>	5.13	5.79	.202	.228
L	14.20	14.78	.559	.582
L <sub>1</sub>	3.71	4.29	.146	.169
ØP	3.00	3.38	.118	.133
Q	5.31	5.69	.209	.224
ØR	4.52	5.49	.178	.216
S	5.31	5.72	.209	.225
T	7.16	8.13	.282	.320

**Rectifiers DO-5**



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.94	17.45	0.667	0.687
ØB	—	16.94	—	0.667
C	—	11.43	—	0.450
D	—	9.53	—	0.375
E	2.92	5.08	0.115	0.200
F	—	2.03	—	0.080
H	1.52	—	0.060	—
J	10.72	11.51	0.422	0.453
K	—	25.40	—	1.000
L	3.86	—	.156	—
ØQ	3.56	4.45	0.140	.175

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**Power Technology Components**

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