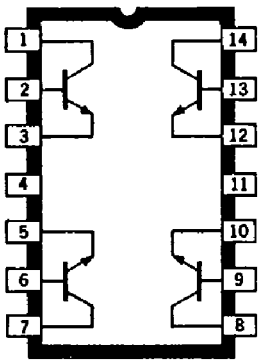
SERIES TPQ
QUAD TRANSISTOR ARRAYS

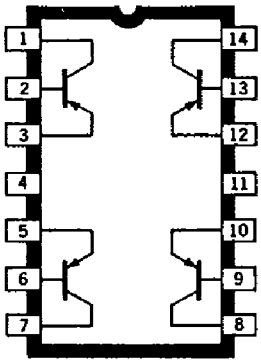
SPRAGUE SERIES TPQ quad transistor arrays are general-purpose silicon transistor arrays consisting of four independent devices. Shown are 10 NPN types, 15 PNP types, and 12 NPN/PNP complementary pairs.

All of these devices are furnished in a 14-pin dual in-line plastic package. The molded package is identical to that used with most consumer integrated circuits and offers superior mechanical protection during insertion into printed wiring boards.



Dwg. No. A-10-050A

TPQ2221
TPQ2221A
TPQ2222
TPQ2222A
TPQ2483
TPQ2484
TPQ3724
TPQ3725
TPQ3904
TPQ4001A
TPQ4002A
TPQ5550
TPQ5551
TPQ6426
TPQ6427
TPQ7041
TPQ7042
TPQ7043
TPQA05
TPQA06



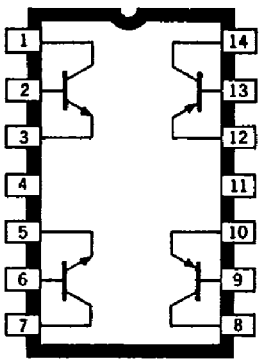
Dwg. No. A-10,051A

TPQ2906
TPQ2906A
TPQ2907
TPQ2907A
TPQ3798
TPQ3799
TPQ3906
TPQ4354
TPQ5400
TPQ5401
TPQ7091
TPQ7092
TPQ7093
TPQA55
TPQA56

ABSOLUTE MAXIMUM RATINGS

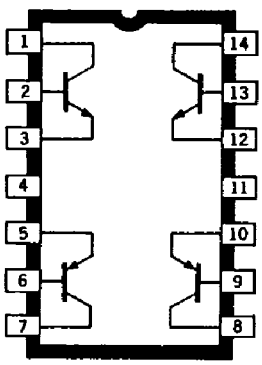
Power Dissipation, P_D (Each Transistor) . . . . . 500 mW
(Total Package) . . . . . 2.0 W*
Operating Temperature Range, T_A . . . . . −55°C to +150°C
Storage Temperature Range, T_S . . . . . −65°C to +150°C

*Derate at the rate of 16 mW/°C above T_A = +25°C



Dwg. No. A-10,052A

TPQ6001
TPQ6002
TPQ6100
TPQ6100A
TPQ6501
TPQ6502



Dwg. No. A-10,053A

TPQ6600
TPQ6600A
TPQ6700
TPQ7051
TPQ7052
TPQ7053

ELECTRICAL CHARACTERISTICS at T_A = +25°C

Part Number	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	I_{CBO} Max. (nA)	I_{CBO} @ V_{CB} (V)	DC Current Gain h_{FE} Min.	DC Current Gain Conditions I_C (mA)	DC Current Gain Conditions V_{CE} (V)	Saturation Voltage V_{CE} Max. (V)	Saturation Voltage V_{BE} Max. (V)	Saturation Voltage @ I_C (mA)	f_T Min. (MHz)	f_T @ I_C (mA)	C_{ob} Max. (pF)	Similar Discrete Devices
Four NPN Devices															
TPQ2221	60	40	5.0	50	50	35 40 20	10 150 300	10 10 10	0.40 1.60	1.30 2.60	150 300	200	20	8.0	2N2221
TPQ2221A	75	40	6.0	50	50	35 40 20	10 150 300	10 10 10	0.40 1.60	1.30 2.60	150 300	200	20	8.0	2N2221A
TPQ2222	60	40	5.0	50	50	75 100 30	10 150 300	10 10 10	0.40 1.60	1.30 2.60	150 300	200	20	8.0	2N2222
TPQ2222A	75	40	6.0	50	50	75 100 30	10 150 300	10 10 10	0.40 1.60	1.30 2.60	150 300	200	20	8.0	2N2222A
TPQ2483	60	40	6.0	20	45	100 150 150	0.1 1.0 10	5.0 5.0 5.0	0.35 0.50 (See Note 1)	0.70 0.80	1.0 10	50	0.5	6.0	2N2483
TPQ2484	60	40	6.0	20	45	200 300 300	0.1 1.0 10	5.0 5.0 5.0	0.35 0.50 (See Note 1)	0.70 0.80	1.0 10	50	0.5	6.0	2N2484
TPQ3724	60 (Note 2)	30	5.0	500	40	35 25	100 500	1.0 2.0	0.45	1.00	500	250	50	10	2N3724
TPQ3725	60 (Note 2)	40	5.0	500	40	35 25	100 500	1.0 2.0	0.45	1.00	500	250	50	10	2N3725
TPQ3904	60	40	6.0	50	40	30 50 75	0.1 1.0 10	1.0 1.0 1.0	0.20	0.85	10	250	10	4.0	2N3904
TPQ4001A	60	40	6.0	500	30	50 30 20	100 500 1000	1.0 1.0 5.0	0.26 0.52 0.95	0.86 1.1 1.7	100 500 1000	200	50	10	—
TPQ4002A	70	45	6.0	500	30	50 30 20	100 500 1000	1.0 1.0 5.0	0.26 0.52 0.95	0.86 1.1 1.7	100 500 1000	200	50	10	—
TPQ5550	160	140	6.0	100	100	60 60 20	1.0 10 50	5.0 5.0 5.0	0.15 0.25	1.00 1.20	10 50	100	10	6.0	2N5550
TPQ5551	180	160	6.0	50	120	80 80 30	1.0 10 50	5.0 5.0 5.0	0.15 0.25	1.00 1.20	10 50	100	10	6.0	2N5551
TPQ6426	40	30	12	100	30	5k 10k	10 100	5.0 5.0	1.5	2.0	100	125	10	8.0	2N6426
TPQ6427	50	40	12	100	30	5k 10k	10 100	5.0 5.0	1.5	2.0	100	125	10	8.0	2N6427

NOTES:
1. Base-emitter voltage shown is $V_{BE(ON)}$ at indicated I_C, V_{CE} = 5.0 V.
2. BV_{CES}

ELECTRICAL CHARACTERISTICS at T_A = +25°C

Part Number	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	I_{CBO} Max. (nA)	I_{CBO} @ V_{CB} (V)	DC Current Gain h_{FE} Min.	Conditions I_C (mA)	Conditions V_{CE} (V)	Saturation Voltage V_{CE} Max. (V)	Saturation Voltage V_{BE} Max. (V)	Saturation Voltage @ I_C (mA)	f_T Min. (MHz)	f_T @ I_C (mA)	C_{ob} Max. (pF)	Similar Discrete Devices
Four NPN Devices (Continued)															
TPQ7041	150	150	5.0	100	120	25 40 40	1.0 10 30	10 10 10	0.5	0.9	20	50	10	5.0	—
TPQ7042	200	200	5.0	100	150	25 40 40	1.0 10 30	10 10 10	0.5	0.9	20	50	10	5.0	—
TPQ7043	250	250	5.0	100	180	25 40 40	1.0 10 30	10 10 10	0.5	0.9	20	50	10	5.0	—
TPQA05	60	60	4.0	100	(Note 1)	50 50	10 100	1.0 2.0	0.25	—	100	—	—	10	MPSA05
TPQA06	80	80	4.0	100	(Note 2)	50 50	10 100	1.0 2.0	0.25	—	100	—	—	10	MPSA06
Four PNP Devices															
TPQ2906	−60	−40	−5.0	50	−30	35 40 30	10 150 300	−10 −10 −10	−0.40 −1.60	−1.30 −2.60	150 300	200	50	8.0	2N2906
TPQ2906A	−60	−40	−5.0	50	−30	35 40 30	10 150 300	−10 −10 −10	−0.40 −1.60	−1.30 −2.60	150 300	200	50	8.0	2N2906A
TPQ2907	−60	−40	−5.0	50	−30	75 100 50	10 150 300	−10 −10 −10	−0.40 −1.60	−1.30 −2.60	150 300	200	50	8.0	2N2907
TPQ2907A	−60	−60	−5.0	50	−30	75 100 50	10 150 300	−10 −10 −10	−0.40 −1.60	−1.30 −2.60	150 300	200	50	8.0	2N2907A
TPQ3798	−60	−40	−5.0	10	−50	100 150 150 125	0.01 0.1 0.5 10	−5.0 −5.0 −5.0 −5.0	−0.20 −0.25	−0.70 −0.80	0.1 1.0	60	1.0	4.0	2N3798
TPQ3799	−60	−60	−5.0	10	−50	225 300 300 250	0.01 0.1 0.5 10	−5.0 −5.0 −5.0 −5.0	−0.20 −0.25	−0.70 −0.80	0.1 1.0	60	1.0	4.0	2N3799
TPQ3906	−40	−40	−5.0	50	−30	40 60 75	0.1 1.0 10	−1.0 −1.0 −1.0	−0.25	−0.85	10	200	10	4.5	2N3906

NOTES:
1. I_{CES} at V_{CE} = 50 V, V_{EE} = 0.
2. I_{CES} at V_{CE} = 60 V, V_{BE} = 0.

ELECTRICAL CHARACTERISTICS at T_A = +25°C

Part Number	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	I_{CBO} Max. (nA)	I_{CBO} @ V_{CB} (V)	h_{FE} Min.	DC Current Gain Conditions I_C (mA)	DC Current Gain Conditions V_{CE} (V)	Saturation Voltage V_{CE} Max. (V)	Saturation Voltage V_{BE} Max. (V)	Saturation Voltage @ I_C (mA)	f_T Min. (MHz)	f_T @ I_C (mA)	C_{ob} Max. (pF)	Similar Discrete Devices
Four PNP Devices (Continued)															
TPQ4354	−60	−60	−5.0	50	−50	25 40 50 40	0.1 1.0 10 100	−10 −10 −10 −10	−0.15	−0.90	150	100	50	30 (Note 1)	2N4354
TPQ5400	−130	−120	−5.0	100	(Note 2)	30 40 40	1.0 10 50	−5.0 −5.0 −5.0	−0.20 −0.50	−1.00 −1.00	10 50	100	10	6.0	2N5400
TPQ5401	−160	−150	−5.0	100	(Note 3)	50 60 50	1.0 10 50	−5.0 −5.0 −5.0	−0.20 −0.50	1.00 1.00	10 50	100	10	6.0	2N5401
TPQ7091	150	150	5.0	250	120	25 35 25	1.0 10 30	10 10 10	0.5	0.9	20	50	10	5.0	—
TPQ7092	200	200	5.0	250	160	25 35 25	1.0 10 30	10 10 10	0.5	0.9	20	50	10	5.0	—
TPQ7093	250	250	5.0	250	180	25 35 25	1.0 10 30	10 10 10	0.5	0.9	20	50	10	5.0	—
TPQA55	−60	−60	−4.0	100	(Note 4)	50 50	10 100	−1.0 −2.0	−0.25	—	100	—	—	15	MPSA55
TPQA56	−80	−80	−4.0	100	(Note 5)	50 50	10 100	−1.0 −2.0	−0.25	—	100	—	—	15	MPSA56
Two NPN/Two PNP Devices															
TPQ6001 (Note 6)	60	30	5.0	30	50	25 35 40 20	1.0 10 150 300	10 10 10 10	0.40 1.40	1.30 2.00	150 300	200	50	8.0	2N2221 and 2N2906
TPQ6002 (Note 6)	60	30	5.0	30	50	50 75 100 30	1.0 10 150 300	10 10 10 10	0.40 1.40	1.30 2.00	150 300	200	50	8.0	2N2222 and 2N2907
TPQ6100 (Note 6)	60	40	5.0	10	50	50 75 75 60	0.1 0.5 1.0 10	5.0 5.0 5.0 5.0	0.25	0.80	1.0	100	0.5	4.0	2N2483 and 2N3798
TPQ6100A (Note 6)	60	45	5.0	10	50	100 150 150 125	0.1 0.5 1.0 10	5.0 5.0 5.0 5.0	0.25	0.80	1.0	100	0.5	4.0	2N2484 and 2N3799

NOTES:
1. C_{ob}
2. I_{CES} at V_{CE} = 100 V, V_{BE} = 0.
3. I_{CES} at V_{CE} = 120 V, V_{BE} = 0.
4. I_{CES} at V_{CE} = 50 V, V_{BE} = 0.
5. I_{CES} at V_{CE} = 60 V, V_{BE} = 0.
6. NPN/PNP complementary pairs. Polarity shown is for NPN devices.

ELECTRICAL CHARACTERISTICS at T_A = +25°C

Part Number (See Note)	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	I_{CBO} Max. (nA)	I_{CBO} @ V_{CB} (V)	DC Current Gain h_{FE} Min.	DC Current Gain Conditions I_C (mA)	DC Current Gain Conditions V_{CE} (V)	Saturation Voltage V_{CE} Max. (V)	Saturation Voltage V_{BE} Max. (V)	Saturation Voltage @ I_C (mA)	f_T Min. (MHz)	f_T @ I_C (mA)	C_{ob} Max. (pF)	Similar Discrete Devices
Two NPN/Two PNP Devices (Continued)															
TPQ6501	60	30	5.0	30	50	25 35 40 20	1.0 10 150 300	10 10 10 10	0.40 1.40	1.30 2.00	150 300	200	50	8.0	2N2221 and 2N2906
TPQ6502	60	30	5.0	30	50	50 75 100 30	1.0 10 150 300	10 10 10 10	0.40 1.40	1.30 2.00	150 300	200	50	8.0	2N2222 and 2N2907
TPQ6600	60	40	5.0	10	50	50 75 75 60	0.1 0.5 1.0 10	5.0 5.0 5.0 5.0	0.25	0.80	1.0	100	0.5	4.0	2N2483 and 2N3738
TPQ6600A	60	45	5.0	10	50	100 150 150 60	0.1 0.5 1.0 10	5.0 5.0 5.0 5.0	0.25	0.80	1.0	100	0.5	4.0	2N2484 and 2N3799
TPQ6700	40	40	5.0	50	30	30 50 70	0.1 1.0 10	1.0 1.0 1.0	0.25	0.90	10	200	10	4.5	2N3904 and 2N3906
TPQ7051	150	150	5.0	250	120	25 35 25	1.0 10 30	10 10 10	0.7	0.9	20	50	10	6.0	—
TPQ7052	200	200	5.0	250	150	25 35 25	1.0 10 30	10 10 10	0.7	0.9	20	50	10	6.0	—
TPQ7053	250	200	5.0	250	180	25 35 25	1.0 10 30	10 10 10	0.7	0.9	20	50	10	6.0	—

NOTE:
NPN/PNP complementary pairs. Polarity shown is for NPN devices.