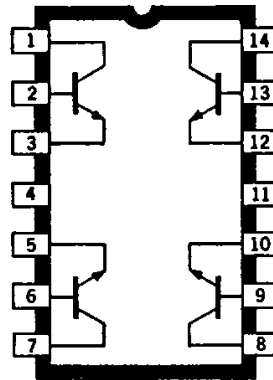


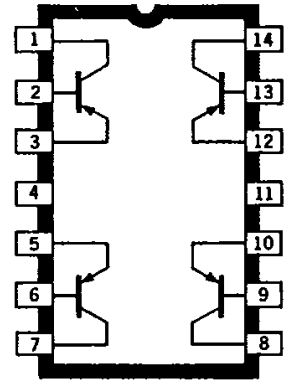
# SERIES TPQ QUAD TRANSISTOR ARRAYS

**S**PRAGUE SERIES TPQ quad transistor arrays are general-purpose silicon transistor arrays consisting of four independent devices. Shown are 20 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



Dwg. No. A-10,051A

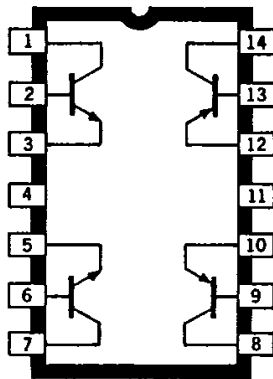
- |          |          |
|----------|----------|
| TPQ2221  | TPQ4002A |
| TPQ2221A | TPQ5550  |
| TPQ2222  | TPQ5551  |
| TPQ2222A | TPQ6426  |
| TPQ2483  | TPQ6427  |
| TPQ2484  | TPQ7041  |
| TPQ3724  | TPQ7042  |
| TPQ3725  | TPQ7043  |
| TPQ3904  | TPQA05   |
| TPQ4001A | TPQA06   |

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

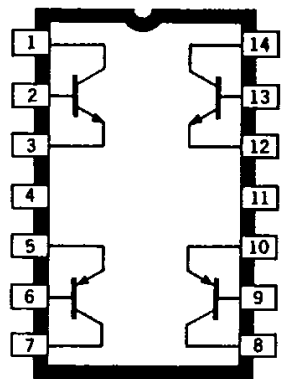
### ABSOLUTE MAXIMUM RATINGS

- Power Dissipation,  $P_D$  (Each Transistor) . . . . . 500 mW
- (Total Package) . . . . . 2.0 W\*
- Operating Temperature Range,  $T_A$  . . . . .  $-55^\circ\text{C}$  to  $+150^\circ\text{C}$
- Storage Temperature Range,  $T_S$  . . . . .  $-65^\circ\text{C}$  to  $+150^\circ\text{C}$

\*Derate at the rate of 16 mW/ $^\circ\text{C}$  above  $T_A = +25^\circ\text{C}$



Dwg. No. A-10,052A



Dwg. No. A-10,053A

- TPQ6001
- TPQ6002
- TPQ6100
- TPQ6100A
- TPQ6501
- TPQ6502

- TPQ6600
- TPQ6600A
- TPQ6700
- TPQ7051
- TPQ7052
- TPQ7053

**ELECTRICAL CHARACTERISTICS at  $T_A = +25^\circ\text{C}$**

Part Number	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	$I_{CBO}$		DC Current Gain			Saturation Voltage			$f_r$		$C_{ob}$ Max. (pF)	Similar Discrete Devices	
				Max. (nA)	@ $V_{CB}$ (V)	$h_{FE}$ Min.	Conditions		$V_{CE}$ Max. (V)	$V_{BE}$ Max. (V)	@ $I_C$ (mA)	Min. (MHz)	@ $I_C$ (mA)			
							$I_C$ (mA)	$V_{CE}$ (V)								
<b>Four NPN Devices</b>																
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  $I_C$ ,  $V_{CE} = 5.0\text{ V}$ .
2.  $BV_{CES}$

ELECTRICAL CHARACTERISTICS at  $T_A = +25^\circ\text{C}$ 

Part Number	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	$I_{CBO}$		DC Current Gain			Saturation Voltage			$f_T$		$C_{ob}$ Max. (pF)	Similar Discrete Devices	
						$h_{FE}$ Min.	Conditions		$V_{CE}$ Max. (V)	$V_{BE}$ Max. (V)	@ $I_C$ (mA)					
				Max. (nA)	@ $V_{CB}$ (V)		$I_C$ (mA)	$V_{CE}$ (V)				Min. (MHz)	@ $I_C$ (mA)			
<b>Four NPN Devices (Continued)</b>																
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:

- $I_{CES}$  at  $V_{CE} = 50\text{ V}$ ,  $V_{BE} = 0$ .
- $I_{CES}$  at  $V_{CE} = 60\text{ V}$ ,  $V_{BE} = 0$ .

# SERIES TPQ QUAD TRANSISTOR ARRAYS

## ELECTRICAL CHARACTERISTICS at $T_A = +25^\circ\text{C}$

Part Number	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	$I_{CBO}$		DC Current Gain			Saturation Voltage			$f_T$		$C_{ob}$ Max. (pF)	Similar Discrete Devices
						$h_{FE}$ Min.	Conditions		$V_{CE}$ Max. (V)	$V_{BE}$ Max. (V)	@ $I_C$ (mA)				
				Max. (nA)	@ $V_{CB}$ (V)		$I_C$ (mA)	$V_{CE}$ (V)				Min. (MHz)	@ $I_C$ (mA)		

### Four PNP Devices (Continued)

TPQ4354	-60	-60	-5.0	50	-50	25	0.1	-10	-0.15	-0.90	150	100	50	30 (Note 1)	2N4354
						40	1.0	-10							
						50	10	-10							
						40	100	-10							
TPQ5400	-130	-120	-5.0	100	(Note 2)	30	1.0	-5.0	-0.20	-1.00	10	100	10	6.0	2N5400
						40	10	-5.0							
						40	50	-5.0							
TPQ5401	-160	-150	-5.0	100	(Note 3)	50	1.0	-5.0	-0.20	1.00	10	100	10	6.0	2N5401
						60	10	-5.0							
						50	50	-5.0							
TPQ7091	150	150	5.0	250	120	25	1.0	10	0.5	0.9	20	50	10	5.0	—
						35	10	10							
						25	30	10							
TPQ7092	200	200	5.0	250	160	25	1.0	10	0.5	0.9	20	50	10	5.0	—
						35	10	10							
						25	30	10							
TPQ7093	250	250	5.0	250	180	25	1.0	10	0.5	0.9	20	50	10	5.0	—
						35	10	10							
						25	30	10							
TPQA55	-60	-60	-4.0	100	(Note 4)	50	10	-1.0	-0.25	—	100	—	—	15	MPSA55
						50	100	-2.0							
TPQA56	-80	-80	-4.0	100	(Note 5)	50	10	-1.0	-0.25	—	100	—	—	15	MPSA56
						50	100	-2.0							

### Two NPN/Two PNP Devices

TPQ6001 (Note 6)	60	30	5.0	30	50	25	1.0	10	0.40	1.30	150	200	50	8.0	2N2221 and 2N2906
						35	10	10							
						40	150	10							
						20	300	10							
TPQ6002 (Note 6)	60	30	5.0	30	50	50	1.0	10	0.40	1.30	150	200	50	8.0	2N2222 and 2N2907
						75	10	10							
						100	150	10							
						30	300	10							
TPQ6100 (Note 6)	60	40	5.0	10	50	50	0.1	5.0	0.25	0.80	1.0	100	0.5	4.0	2N2483 and 2N3798
						75	0.5	5.0							
						75	1.0	5.0							
						60	10	5.0							
TPQ6100A (Note 6)	60	45	5.0	10	50	100	0.1	5.0	0.25	0.80	1.0	100	0.5	4.0	2N2484 and 2N3799
						150	0.5	5.0							
						150	1.0	5.0							
						125	10	5.0							

#### NOTES:

- $C_{ob}$
- $I_{CES}$  at  $V_{CE} = 100\text{ V}$ ,  $V_{BE} = 0$ .
- $I_{CES}$  at  $V_{CE} = 120\text{ V}$ ,  $V_{BE} = 0$ .
- $I_{CES}$  at  $V_{CE} = 50\text{ V}$ ,  $V_{BE} = 0$ .
- $I_{CES}$  at  $V_{CE} = 60\text{ V}$ ,  $V_{BE} = 0$ .
- NPN/PNP complementary pairs. Polarity shown is for NPN devices.

ELECTRICAL CHARACTERISTICS at  $T_A = +25^\circ\text{C}$ 

Part Number (See Note)	$V_{(BR)CBO}$ (V)	$V_{(BR)CEO}$ (V)	$V_{(BR)EBO}$ (V)	$I_{CBO}$		DC Current Gain			Saturation Voltage			$f_T$		$C_{ob}$ Max. (pF)	Similar Discrete Devices	
						Max. (nA)	@ $V_{CB}$ (V)	$h_{FE}$ Min.	Conditions		$V_{CE}$ Max. (V)	$V_{BE}$ Max. (V)	@ $I_C$ (mA)			Min. (MHz)
				$I_C$ (mA)	$V_{CE}$ (V)											
<b>Two NPN/Two PNP Devices (Continued)</b>																
TPQ6501	60	30	5.0	30	50	25	1.0	10	0.40	1.30	150	200	50	8.0	2N2221 and 2N2906	
						35	10	10	1.40	2.00	300					
						40	150	10								
						20	300	10								
TPQ6502	60	30	5.0	30	50	50	1.0	10	0.40	1.30	150	200	50	8.0	2N2222 and 2N2907	
						75	10	10	1.40	2.00	300					
						100	150	10								
						30	300	10								
TPQ6600	60	40	5.0	10	50	50	0.1	5.0	0.25	0.80	1.0	100	0.5	4.0	2N2483 and 2N3738	
						75	0.5	5.0								
						75	1.0	5.0								
						60	10	5.0								
TPQ6600A	60	45	5.0	10	50	100	0.1	5.0	0.25	0.80	1.0	100	0.5	4.0	2N2434 and 2N3799	
						150	0.5	5.0								
						150	1.0	5.0								
						60	10	5.0								
TPQ6700	40	40	5.0	50	30	30	0.1	1.0	0.25	0.90	10	200	10	4.5	2N3904 and 2N3906	
						50	1.0	1.0								
						70	10	1.0								
TPQ7051	150	150	5.0	250	120	25	1.0	10	0.7	0.9	20	50	10	6.0	—	
						35	10	10								
						25	30	10								
TPQ7052	200	200	5.0	250	150	25	1.0	10	0.7	0.9	20	50	10	6.0	—	
						35	10	10								
						25	30	10								
TPQ7053	250	200	5.0	250	180	25	1.0	10	0.7	0.9	20	50	10	6.0	—	
						35	10	10								
						25	30	10								

## NOTE:

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