

INTERIM BULLETIN

Subject to Revision Without Notice

-July 15, 1971

POWER TRANSISTOR
ENGINEERING BULLETINTYPE PG1250 thru PG1252, 5 AMP NPN
SILICON PLANAR POWER TRANSISTORS

- TO-111
- 70 MHz (typical)
- 30 WATTS @ 100°C
- PREMIUM GRADE

MAXIMUM RATINGS @ 25°C AMBIENT (Unless otherwise noted)

| RATING | | UNIT |
|--------------------------------|------------|-------|
| Collector-Base Voltage | 120 | Volts |
| Emitter-Base Voltage | 8 | Volts |
| Collector-Emitter Voltage | 100 | Volts |
| Collector Current | 5 | Amps |
| Base Current | 0.5 | Amps |
| Storage Temperature | -65 to 200 | °C |
| Operating Junction Temperature | -65 to 200 | °C |
| Dissipation @ 100°C Case | 20 | Watts |
| Linear Derating Factor | 200 | mW/°C |

ELECTRICAL CHARACTERISTICS @ 25°C Case Temp. (Unless otherwise noted)

| SYMBOL | CONDITIONS | LIMIT | | UNIT |
|-------------------|---|-------|------|---------|
| | | MIN. | MAX. | |
| BV_{CBO} | $I_{CBO} = 10\mu A$ | 120 | | Volts |
| BV_{EBO} | $I_{EBO} = 10\mu A$ | 8 | | Volts |
| BV_{CEO} | $I_C = 10mA$ | 100 | | Volts |
| I_{CEX} | $V_{CE} = 60V, V_{BE} = -0.5V, T_C = 150^\circ C$ | | 50 | μA |
| I_{CEX} | $V_{CE} = BV_{CBO}, V_{BE} = -0.5V$ | | 10 | μA |
| I_{CBO} | $V_{CB} = 60, I_E = 0$ | | 0.1 | μA |
| I_{EBO} | $V_{EB} = 8V$ | | 10 | μA |
| | $V_{EB} = 5V$ | | 0.1 | μA |
| $BV_{CEO(sus)}^*$ | $I_C = 100mA, I_B = 0$ | 100 | | Volts |

PIRGO ELECTRONICS INC.

A Sprague Electric Company Subsidiary
Pembroke Road, Concord, N.H. 03301

PG-1250-1X

TYPE P 1250 thru PG1252, 5 AMP NPN
SILICON PLANAR POWER TRANSISTORSENGINEERING
BULLETIN
31,523

ELECTRICAL CHARACTERISTICS @ 25°C (Continued)

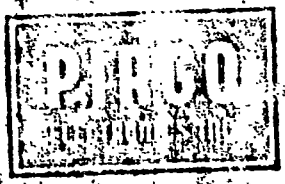
| SYMBOL | CONDITIONS | TYPES | LIMIT | | UNIT |
|-----------------|--|--------|-------|------|---------|
| | | | MIN. | MAX. | |
| I_{CEO} | $V_{CE} = 50V, I_B = 0$ | | | 100 | μA |
| h_{FE} | $I_C = 10mA, V_{CE} = 2V$ | PG1250 | 15 | | |
| | | PG1251 | 30 | | |
| | | PG1252 | 75 | | |
| h_{FE}^* | $I_C = 1A, V_{CE} = 2V$ | PG1250 | 20 | 60 | |
| | | PG1251 | 40 | 120 | |
| | | PG1252 | 100 | 300 | |
| | $I_C = 1A, V_{CE} = 2V, T_C = -55^\circ C$ | PG1250 | 10 | | |
| | | PG1251 | 15 | | |
| | | PG1252 | 30 | | |
| | $I_C = 5A, V_{CE} = 5V$ | PG1250 | 10 | | |
| | | PG1251 | 15 | | |
| | | PG1252 | 20 | | |
| $V_{CE(sat)}^*$ | $I_C = 1A, I_B = 100mA$ | | | .25 | Volts |
| | $I_C = 5A, I_B = 500mA$ | | | 2 | Volts |
| $V_{BE(sat)}^*$ | $I_C = 1A, I_B = 100mA$ | | | 1.2 | Volts |
| V_{BE} | $I_C = 1A, V_{CE} = 2V$ | | | 1.2 | Volts |
| $ h_{fe} $ | $V_{CE} = 10V, I_C = 1A, f = 10MHz$ | PG1250 | 3 | | |
| | | PG1251 | 4 | | |
| | | PG1252 | 5 | | |
| h_{fe} | $V_{CE} = 5V, I_C = 50mA, f = 1KHz$ | PG1250 | 20 | 70 | |
| | | PG1251 | 40 | 140 | |
| | | PG1252 | 100 | 350 | |
| C_{ob} | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | | | 150 | pf |

*Pulse test: $PW \leq 330 \mu sec$; 2% duty cycle.

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PG-1250-2X

INTERIM BULLETIN
Subject to Change Without Notice



POWER TRANSISTOR
ENGINEERING BULLETIN

AUGUST 7, 1970

**TYPE PGI253 thru PGI264, 5 AMP NPN
SILICON PLANAR POWER TRANSISTORS**

- TO-111 o 70 MHz (typical)
- 30 WATTS @ 100°C

MAXIMUM RATINGS @ 25° C AMBIENT (Unless otherwise noted)

| RATING | PGI253 | PGI254 | PGI255 | PGI256 | UNIT |
|--------------------------------|------------|--------|--------|--------|-------|
| | PGI257 | PGI258 | PGI259 | PGI260 | |
| | PGI261 | PGI262 | PGI263 | PGI264 | |
| Collector-Base Voltage | 60 | 80 | 100 | 120 | Volts |
| Emitter-Base Voltage | 6 | 6 | 6 | 6 | Volts |
| Collector-Emitter Voltage | 40 | 60 | 80 | 100 | Volts |
| Collector Current | 5 | 5 | 5 | 5 | Amps |
| Base Current | 0.5 | 0.5 | 0.5 | 0.5 | Amps |
| Storage Temperature | -65 to 200 | | | | °C |
| Operating Junction Temperature | -65 to 200 | | | | °C |
| Dissipation @ 100° C Case | 20 | 20 | 20 | 20 | Watts |
| Linear Derating Factor | 200 | 200 | 200 | 200 | mW/°C |

ELECTRICAL CHARACTERISTICS @ 25° C Case Temp. (Unless otherwise noted)

| SYMBOL | CONDITIONS | TYPES | LIMIT | | UNIT |
|-------------------|--|--------|-------|------|-------|
| | | | MIN. | MAX. | |
| BV _{CBO} | I _{CBO} = 10μA | PGI253 | 60 | | Volts |
| | | PGI257 | | | |
| | | PGI261 | | | |
| | | PGI254 | 80 | | |
| | | PGI258 | | | |
| | | PGI262 | | | Volts |
| | | PGI255 | 100 | | |
| | | PGI259 | | | Volts |
| | | PGI263 | | | |
| | | PGI256 | 120 | | Volts |
| PGI260 | | | | | |
| PGI264 | | | | | |
| BV _{EBO} | I _{EBO} = 10μA | All | 6 | | Volts |
| I _{CEX} | V _{CE} = 40V, V _{BE} = -0.5V, T _C = 150°C | All | | 50 | μA |

TYPE PGI253 thru PGI264, 5 AMP NPN SILICON PLANAR POWER TRANSISTORS

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PIRGO ELECTRONICS INC.

130 CENTRAL AVENUE

PG-1253-N

ENGINEERING BULLETIN 31, 52

ELECTRICAL CHARACTERISTICS @ 25°C (Continued)

| SYMBOL | CONDITIONS | TYPES | LIMIT | | UNIT |
|----------------|--|--|-----------------|------------------|---------|
| | | | MIN. | MAX. | |
| I_{CEX} | $V_{CE} = BV$ $C_{BO}; V_{BE} = -0.5V$ | All | | 10 | μA |
| I_{CBO} | $V_{CB} = 50V, I_E = 0$ | All | | 10 | μA |
| I_{EBO} | $V_{EB} = 6V$ | All | | 10 | μA |
| $V_{CEO(sus)}$ | $I_C = 100mA, I_B = 0$ | PG1253 PG1257 PG1261 PG1254 PG1258 PG1262 PG1255 PG1259 PG1263 PG1255 PG1260 PG1264 | 40 | | Volts |
| V_{CEO} | $V_{CE} = 30V, I_B = 0$ | All | | 100 | μA |
| h_{FE} | $I_C = 1A, V_{CE} = 2V$ | PG1253 thru PG1255 PG1257 thru PG1260 PG1261 thru PG1264 | 20 40 100 | 60 120 300 | |
| $V_{CE(sat)}$ | $I_C = 1A, I_B = 100mA$ | All | | 0.5 | Volts |
| $V_{BE(sat)}$ | $I_C = 1A, I_B = 100mA$ | All | | 2.0 | Volts |
| V_{BE} | $I_C = 1A, V_{CE} = 2V$ | All | | 2.0 | Volts |
| $ h_{fe} $ | $V_{CE} = 10V, I_C = 1A, f = 10 \text{ MHz}$ | PG1253 thru PG1255 PG1257 thru PG1260 PG1261 thru PG1264 | 2 3 3 | | |
| C_{ob} | $V_{CB} = 10V, I_E = 0, f = 1 \text{ MHz}$ | All | | 150 | pf |

PG1253 - PG1264

BEST COPY AVAILABLE

#31, 524

*Pulse Test: PW < 330 μs ; 2% duty cycle.

PG-1253-2X

A P I ELECTRONICS INC

POWER TRANSISTOR
ENGINEERING BULLETIN

-July 15, 1971

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 TYPE P 1275 thru P 1277, 5 AMP NPN
 SILICON PLANAR POWER TRANSISTORS

**TYPE PG1275 thru PG1277, 5 AMP NPN
 SILICON PLANAR POWER TRANSISTORS**

- TO - 111 (Isolated)
- 70 MHz (typical)
- 30 WATTS @ 100°C
- PREMIUM GRADE

MAXIMUM RATINGS @ 25°C AMBIENT (Unless otherwise noted)

| RATING | | UNIT |
|--------------------------------|------------|-------|
| Collector-Base Voltage | 120 | Volts |
| Emitter-Base Voltage | 8 | Volts |
| Collector-Emitter Voltage | 100 | Volts |
| Collector Current | 5 | Amps |
| Base Current | 0.5 | Amps |
| Storage Temperature | -65 to 200 | °C |
| Operating Junction Temperature | -65 to 200 | °C |
| Dissipation @ 100°C Case | 20 | Watts |
| Linear Derating Factor | 200 | mW/°C |

ELECTRICAL CHARACTERISTICS @ 25°C Case Temp. (Unless otherwise noted)

| SYMBOL | CONDITIONS | LIMIT | | UNIT |
|-------------------|---|-------|------|---------|
| | | MIN. | MAX. | |
| BV_{CBO} | $I_{CBO} = 10\mu A$ | 120 | | Volts |
| BV_{EBO} | $I_{EBO} = 10\mu A$ All | 8 | | Volts |
| BV_{CEO} | $I_C = 10mA$ | 100 | | Volts |
| I_{CEX} | $V_{CE} = 60V, V_{BE} = -0.5V, T_C = 150^\circ C$ | | 50 | μA |
| I_{CEX} | $V_{CE} = BV_{CBO}, V_{BE} = -0.5V$ | | 10 | μA |
| I_{CBO} | $V_{CB} = 60, I_E = 0$ | | 0.1 | μA |
| I_{EBO} | $V_{EB} = 8V$ | | 10 | μA |
| | $V_{EB} = 5V$ | | 0.1 | μA |
| $BV_{CEO(sus)}^*$ | $I_C = 100mA, I_B = 0$ | | 100 | Volts |
| I_{CEO} | $V_{CE} = 50V, I_B = 0$ | | 100 | μA |

PIRGO ELECTRONICS INC.

 A Sprague Electric Company Subsidiary
 Pembroke Road, Concord, N.H. 03301

PG--1275-1X

 ENGINEERING
 BULLETIN
 31, 525

ELECTRICAL CHARACTERISTICS @ 25°C (Continued)

| SYMBOL | CONDITIONS | TYPES | LIMIT | | UNITS |
|------------------------|--|--------|-------|------|-------|
| | | | MIN. | MAX. | |
| h_{FE} | $I_C = 10\text{mA}, V_{CE} = 2\text{V}$ | PG1275 | 15 | | |
| | | PG1276 | 30 | | |
| | | PG1277 | 75 | | |
| h_{FE}^* | $I_C = 1\text{A}, V_{CE} = 5\text{V}$ | PG1275 | 20 | 60 | |
| | | PG1276 | 40 | 120 | |
| | | PG1277 | 100 | 300 | |
| | $I_C = 1\text{A}, V_{CE} = 2\text{V}, T_C = -55^\circ\text{C}$ | PG1275 | 10 | | |
| | | PG1276 | 15 | | |
| | | PG1277 | 30 | | |
| | $I_C = 5\text{A}, V_{CE} = 5\text{V}$ | PG1275 | 10 | | |
| | | PG1276 | 15 | | |
| | | PG1277 | 20 | | |
| $V_{CE(\text{sat})}^*$ | $I_C = 1\text{A}, I_B = 100\text{mA}$ | | | .25 | Volts |
| | $I_C = 5\text{A}, I_B = 500\text{mA}$ | | | 2 | Volts |
| $V_{BE(\text{sat})}^*$ | $I_C = 1\text{A}, I_B = 100\text{mA}$ | | | 1.2 | Volts |
| V_{BE} | $I_C = 1\text{A}, V_{CE} = 5\text{V}$ | | | 1.2 | Volts |
| $ h_{fe} $ | $V_{CE} = 10\text{V}, I_C = 1\text{A}, f = 10\text{ MHz}$ | PG1275 | 3 | | |
| | | PG1276 | 4 | | |
| | | PG1277 | 5 | | |
| h_{fe} | $V_{CE} = 5\text{V}, I_C = 50\text{mA}, f = 1\text{KHz}$ | PG1275 | 20 | 70 | |
| | | PG1276 | 40 | 140 | |
| | | PG1277 | 100 | 350 | |
| C_{ob} | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$ | | | 150 | pf |

*Pulse test: $PW \leq 330\ \mu\text{sec}$; 2% duty cycle.

PG-1275-2X

INTERIM BULLETIN

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**POWER TRANSISTOR
ENGINEERING BULLETIN**

**TYPE P 1278 thru P 1289, 5 AMP NPN
SILICON PLANAR POWER TRANSISTORS**

TYPE PG1278 thru PG1289, 5 AMP NPN SILICON PLANAR POWER TRANSISTORS

- TO-111 (Isolated)
- 70 MHZ (typical)
- 30 WATTS @ 100° C

MAXIMUM RATINGS @ 25° C AMBIENT (Unless otherwise noted)

| RATING | PG1278 | PG1279 | PG1280 | PG1281 | UNIT |
|---------------------------|--------|------------|--------|--------|-------|
| | PG1282 | PG1283 | PG1284 | PG1285 | |
| | PG1286 | PG1287 | PG1288 | PG1289 | |
| Collector-Base Voltage | 60 | 80 | 100 | 120 | Volts |
| Emitter-Base Voltage | 6 | 6 | 6 | 6 | Volts |
| Collector-Emitter Voltage | 40 | 60 | 80 | 100 | Volts |
| Collector Current | 5 | 5 | 5 | 5 | Amps |
| Base Current | 0.5 | 0.5 | 0.5 | 0.5 | Amps |
| Storage Temperature | | -65 to 200 | | | °C |
| Operating Junction Temp. | | -65 to 200 | | | °C |
| Dissipation @ 100° C Case | 20 | 20 | 20 | 20 | Watts |
| Linear Derating Factor | 200 | 200 | 200 | 200 | mW/°C |

ELECTRICAL CHARACTERISTICS @ 25° C Case Temp. (Unless otherwise noted)

| SYMBOL | CONDITIONS | TYPE | LIMIT | | UNIT |
|------------|---------------------|--------|-------|------|-------|
| | | | MIN. | MAX. | |
| BV_{CBO} | $I_{CBO} = 10\mu A$ | PG1278 | 60 | | Volts |
| | | PG1282 | | | |
| | | PG1286 | | | |
| | | PG1279 | 80 | | Volts |
| | | PG1283 | | | |
| | | PG1287 | | | |
| | | PG1280 | 100 | | Volts |
| | | PG1284 | | | |
| | | PG1288 | | | |
| PG1281 | 120 | | Volts | | |
| PG1285 | | | | | |
| PG1289 | | | | | |
| BV_{EBO} | $I_{EBO} = 10\mu A$ | All | 6 | | Volts |

PIRGO ELECTRONICS INC.

A Sprague Electric Company Subsidiary

Pembroke Road, Concord, N.H. 03301

pg--1278-1x

ELECTRICAL CHARACTERISTICS @ 25° C (Continued)

| SYMBOL | CONDITIONS | TYPE | LIMIT | | UNIT |
|-------------------|---|--|-----------------|------------------|---------|
| | | | MIN. | MAX. | |
| I_{CEX} | $V_{CE} = 40V, V_{BE} = -0.5V, T_C = 150^\circ C$ | All | | 50 | μA |
| I_{CEX} | $V_{CE} = BV_{CBO}; V_{BE} = -0.5V$ | All | | 10 | μA |
| I_{CBO} | $V_{CB} = 50V, I_E = 0$ | All | | 10 | μA |
| I_{EBO} | $V_{EB} = 6V$ | All | | 10 | μA |
| $BV_{CEO(sus)}^*$ | $I_C = 100mA, I_B = 0$ | PG1278 PG1282 PG1286 PG1279 PG1283 PG1287 PG1280 PG1284 PG1288 PG1281 PG1285 PG1289 | 40 | | Volts |
| I_{CEO} | $V_{CE} = 30V, I_B = 0$ | All | | 100 | μA |
| h_{FE}^* | $I_C = 1A, V_{CE} = 5V$ | PG1278 thru PG1281 PG1282 thru PG1285 PG1286 thru PG1289 | 20 40 100 | 60 120 300 | |
| $V_{CE(sat)}^*$ | $I_C = 1A, I_B = 100mA$ | All | | 0.5 | Volts |
| $V_{BE(sat)}^*$ | $I_C = 1A, I_B = 100mA$ | All | | 2.0 | Volts |
| V_{BE}^* | $I_C = 1A, V_{CE} = 5V$ | All | | 2.0 | Volts |
| $ h_{fe} $ | $V_{CE} = 10V, I_C = 1A, f = 10MHz$ | PG1278 thru PG1281 PG1282 thru PG1285 PG1286 thru PG1289 | 2 3 3 | | |
| C_{ob} | $V_{CB} = 10V, I_E = 0, f = 1 MHz$ | All | | 150 | pf |

*Pulse Test: $PW \leq 330 \mu s$; 2% duty cycle.

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