DIGITRON™
Semiconductors

**High-reliability discrete products
and engineering services since 1977**

# 2N3773 – NPN
# 2N6609 – PNP

## SILICON POWER TRANSISTORS

### FEATURES

- Available as “HR” (high reliability) screened per MIL-PRF-19500, JANTX level. Add “HR” suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding “-PBF” suffix.

### MAXIMUM RATINGS

| Ratings | Symbol | 2N3773 | 2N6609 | Unit |
|---|---|---|---|---|
| **Collector-emitter voltage** | $V_{CEO(SUS)}$ | 140 | | V |
| **Collector-emitter voltage** | $V_{CER}$ | 160 | | V |
| **Collector-base voltage** | $V_{CBO}$ | 160 | | V |
| **Emitter-base voltage** | $V_{EBO}$ | 7.0 | | V |
| **Collector current – continuous**<br>**Peak** (1) | $I_C$ | 16<br>30 | | A |
| **Base current – continuous**<br>**Peak** (1) | $I_B$ | 4.0<br>15 | | A |
| **Total power dissipation @$T_C$ = 25°C**<br>**Derate above 25°C** | $P_T$ | 150<br>0.857 | | W<br>W/°C |
| **Operating junction and storage temperature range** | $T_J$, $T_{stg}$ | -65 to +200 | | °C |
| **THERMAL CHARACTERISTICS** | | | | |
| **Maximum thermal resistance, junction-to-case** | $R_{\theta JC}$ | 1.17 | | °C/W |

### ELECTRICAL CHARACTERISTICS (T$_A$ = 25°C unless otherwise specified)

| Characteristics | Symbol | Min. | Max. | Unit |
|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | |
| **Collector-emitter sustaining voltage**(1)<br>**$I_C$ = 200mA, $I_B$ = 0** | $V_{(BR)SUS}$ | 140 | - | V |
| **Collector cutoff current**<br>**$V_{CE}$ = 120V, $I_B$ = 0** | $I_{CEO}$ | - | 10 | mA |
| **Collector cutoff current**<br>**$V_{CB}$ = 140V, $V_{BE(OFF)}$ = 1.5V** | $I_{CEX}$ | - | 2.0 | mA |
| **Collector cutoff current**<br>**$V_{CB}$ = 140V, $I_E$ = 0** | $I_{CBO}$ | - | 2.0 | mA |
| **Emitter cutoff current**<br>**$V_{EB}$ = 7V, $I_C$ = 0** | $I_{EBO}$ | - | 5.0 | mA |
| **ON-CHARACTERISTICS**(1) | | | | |
| **DC current gain**<br>**$I_C$ = 8.0A, $V_{CE}$ = 4.0V**<br>**$I_C$ = 16A, $V_{CE}$ = 4.0V** | $h_{FE}$ | 15<br>5.0 | 60<br>- | - |
| **Collector-emitter saturation voltage**<br>**$I_C$ = 8.0A, $I_B$ = 800mA**<br>**$I_C$ = 16A, $I_B$ = 3.2A** | $V_{CE(sat)}$ | -<br>- | 1.4<br>4.0 | V |
| **Base-emitter voltage**<br>**$I_C$ = 8.0A, $V_{CE}$ = 4.0V** | $V_{BE}$ | - | 2.2 | V |

Note 1: Pulse test: pulse width = 300µs, duty cycle ≤ 2.0%.
Note 2: $\mathrm{Ih}_{fe}\mathrm{I}$ °$f_{test}$

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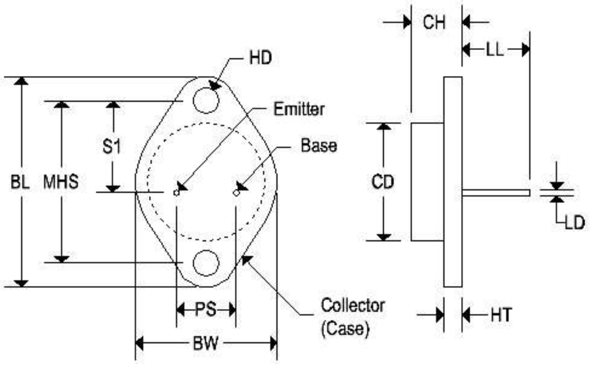
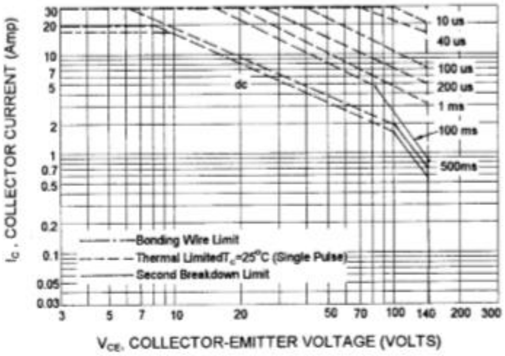
## MECHANICAL CHARACTERISTICS

| | |
|---|---|
| **Case** | TO-3 |
| **Marking** | Alpha-numeric |
| **Polarity** | See below |



| | TO-3 | | | |
|---|---|---|---|---|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| **CD** | - | 0.875 | - | 22.220 |
| **CH** | 0.250 | 0.335 | 6.350 | 8.510 |
| **HT** | 0.055 | 0.135 | 1.400 | 3.430 |
| **BW** | - | 1.050 | - | 26.670 |
| **HD** | 0.131 | 0.188 | 3.330 | 4.780 |
| **LD** | 0.038 | 0.043 | 0.970 | 1.090 |
| **LL** | 0.312 | 0.500 | 7.920 | 12.700 |
| **BL** | 1.550 REF | | 39.370 REF | |
| **MHS** | 1.177 | 1.197 | 29.900 | 30.400 |
| **PS** | 0.420 | 0.440 | 10.670 | 11.180 |
| **S1** | 0.655 | 0.675 | 16.640 | 17.150 |



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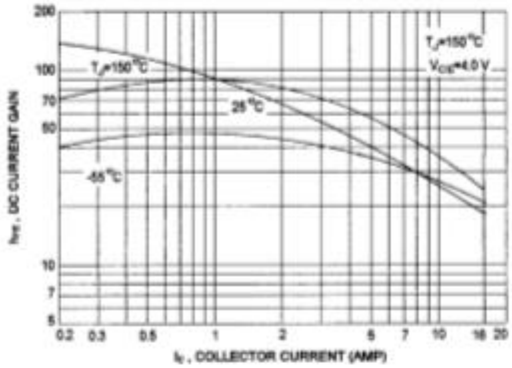
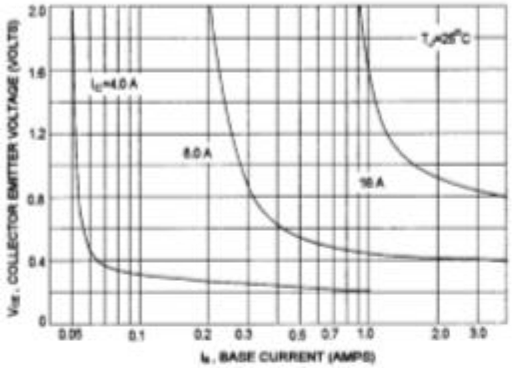
## NPN 2N3773

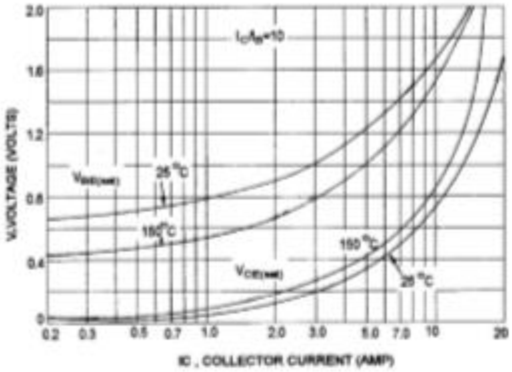
DC CURRENT GAIN



COLLECTOR SATURATION REGION

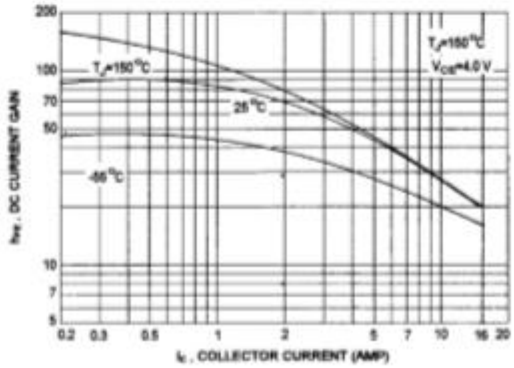


"ON" VOLTAGES

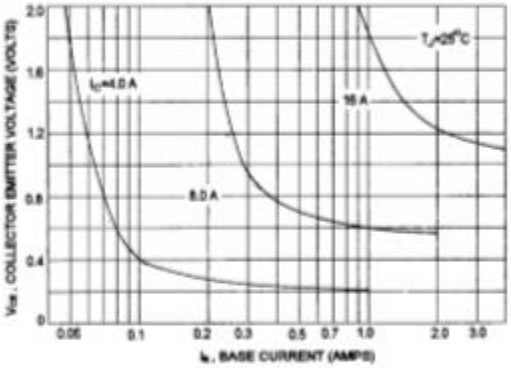


## PNP MJ6609

DC CURRENT GAIN



COLLECTOR SATURATION REGION



"ON" VOLTAGES