



**MJD2955**  
**MJD3055**

## COMPLEMENTARY POWER TRANSISTORS

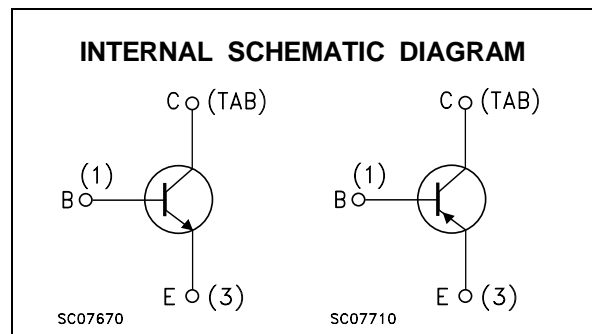
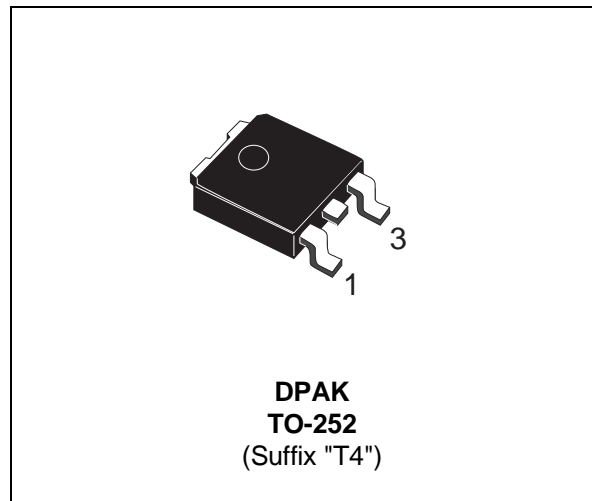
- STMicroelectronics PREFERRED SALESTYPES
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICALLY SIMILAR TO MJE2955T AND MJE3055T

### APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER

### DESCRIPTION

The MJD2955 and MJD3055 form complementary PNP-NPN pairs. They are manufactured using Epitaxial Base technology for cost-effective performance.



### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Parameter                                     | Value |            | Unit             |
|-----------|---|-------|------------|------------------|
|           |   | NPN   | MJD3055    |                  |
|           |   | PNP   | MJD2955    |                  |
| $V_{CBO}$ | Collector-Base Voltage ( $I_E = 0$ )          |       | 70         | V                |
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_B = 0$ )       |       | 60         | V                |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )            |       | 5          | V                |
| $I_C$     | Collector Current                             |       | 10         | A                |
| $I_B$     | Base Current                                  |       | 6          | A                |
| $P_{tot}$ | Total Dissipation at $T_c = 25^\circ\text{C}$ |       | 20         | W                |
| $T_{stg}$ | Storage Temperature                           |       | -65 to 150 | $^\circ\text{C}$ |
| $T_j$     | Max. Operating Junction Temperature           |       | 150        | $^\circ\text{C}$ |

For PNP type voltage and current values are negative.

# MJD2955 / MJD3055

## THERMAL DATA

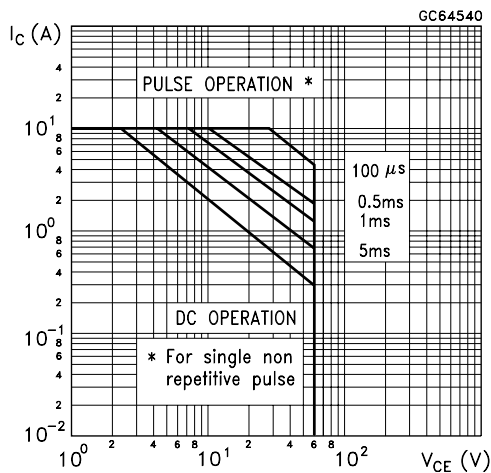
|                       |                                     |     |      |      |
|-----------------------|-------------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case    | Max | 6.25 | °C/W |
| R <sub>thj-amb</sub>  | Thermal Resistance Junction-ambient | Max | 100  | °C/W |

## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

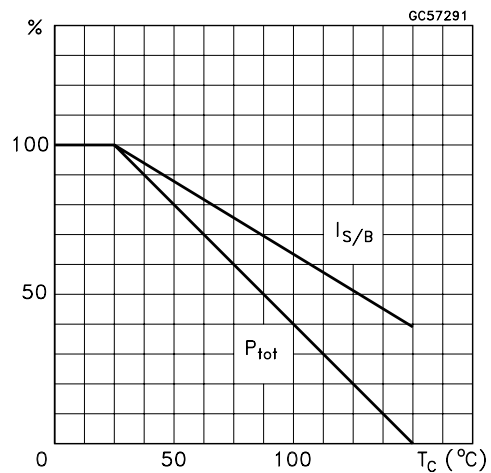
| Symbol                 | Parameter   | Test Conditions   | Min.    | Typ. | Max.     | Unit     |
|------------------------|---|---|---------|------|----------|----------|
| I <sub>CEX</sub>       | Collector Cut-off Current (V <sub>BE</sub> = -1.5 V)      | V <sub>CE</sub> = 70 V<br>V <sub>CE</sub> = 70 V<br>T <sub>j</sub> = 150 °C                 |         |      | 20<br>2  | μA<br>mA |
| I <sub>CBO</sub>       | Collector Cut-off Current (I <sub>E</sub> = 0)            | V <sub>CB</sub> = 70 V<br>V <sub>CB</sub> = 70 V<br>T <sub>j</sub> = 150 °C                 |         |      | 20<br>2  | μA<br>mA |
| I <sub>CEO</sub>       | Collector Cut-off Current (I <sub>B</sub> = 0)            | V <sub>CE</sub> = 30 V  |         |      | 50       | μA       |
| I <sub>EBO</sub>       | Emitter Cut-off Current (I <sub>C</sub> = 0)              | V <sub>EB</sub> = 5 V   |         |      | 0.5      | mA       |
| V <sub>CEO(sus)*</sub> | Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0) | I <sub>C</sub> = 30 mA  | 60      |      |          | V        |
| V <sub>CE(sat)*</sub>  | Collector-Emitter Saturation Voltage                      | I <sub>C</sub> = 4 A I <sub>B</sub> = 0.4 A<br>I <sub>C</sub> = 10 A I <sub>B</sub> = 3.3 A |         |      | 1.1<br>8 | V<br>V   |
| V <sub>BE(on)*</sub>   | Base-Emitter Voltage                                      | I <sub>C</sub> = 4 A V <sub>CE</sub> = 4 V  |         |      | 1.8      | V        |
| h <sub>FE*</sub>       | DC Current Gain   | I <sub>C</sub> = 4 A V <sub>CE</sub> = 4 V<br>I <sub>C</sub> = 10 A V <sub>CE</sub> = 4 V   | 20<br>5 |      | 100      |          |
| f <sub>T</sub>         | Transition Frequency                                      | I <sub>C</sub> = 0.5 A V <sub>CE</sub> = 10 V f = 500 KHz                                   | 2       |      |          | MHz      |

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %  
For PNP type voltage and current values are negative.

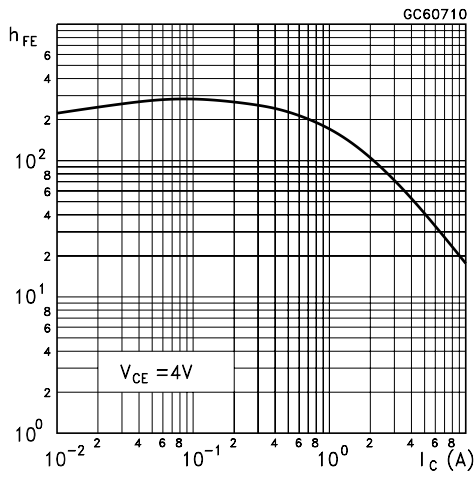
## Safe Operating Area



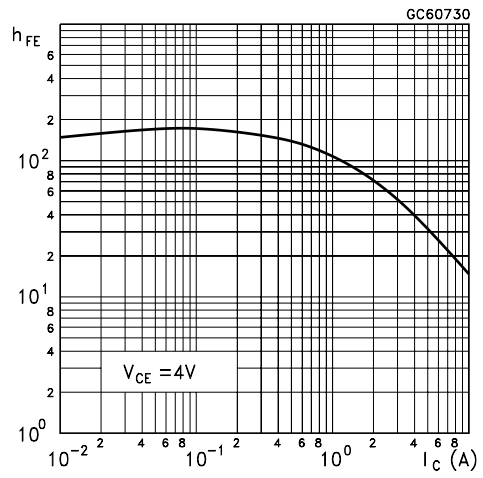
## Derating Curves



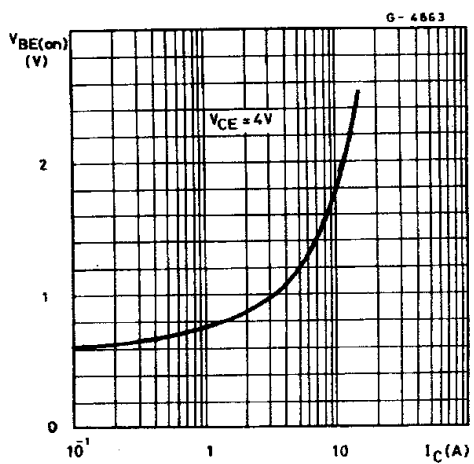
DC Current Gain (NPN type)



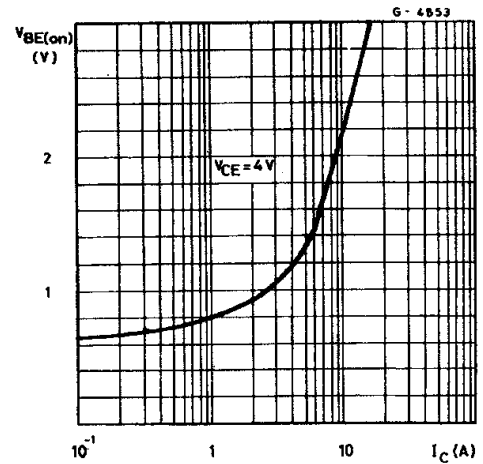
DC Current Gain (PNP type)



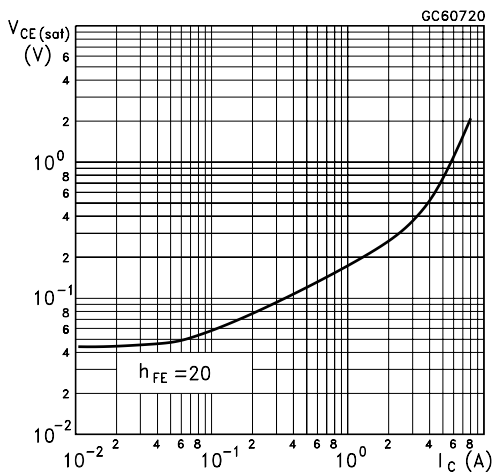
DC Transconductance (NPN type)



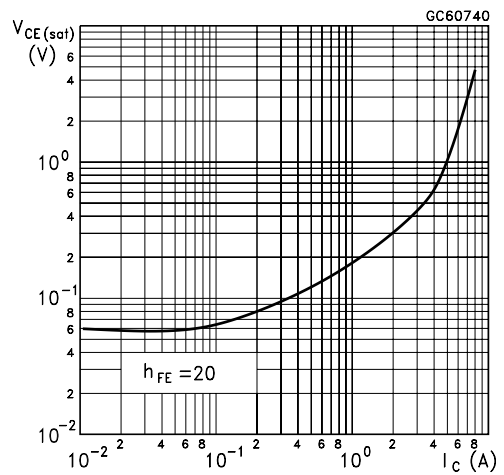
DC Transconductance (PNP type)



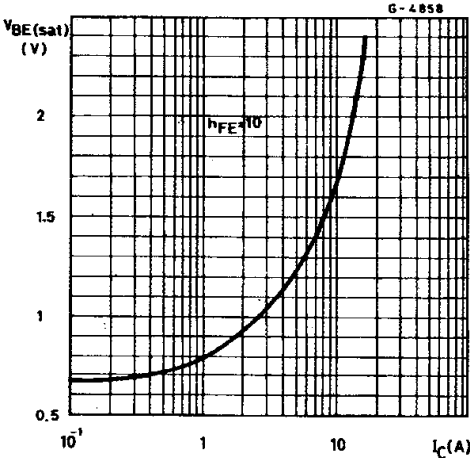
Collector-Emitter Saturation Voltage (NPN type)



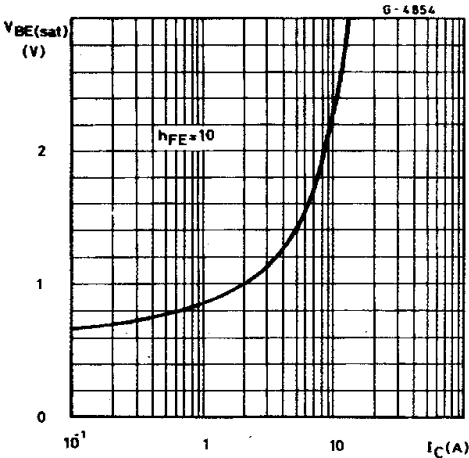
Collector-Emitter Saturation Voltage (PNP type)



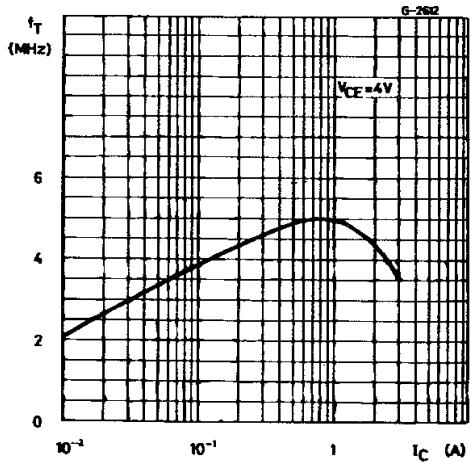
Base-Emitter Saturation Voltage (NPN type)



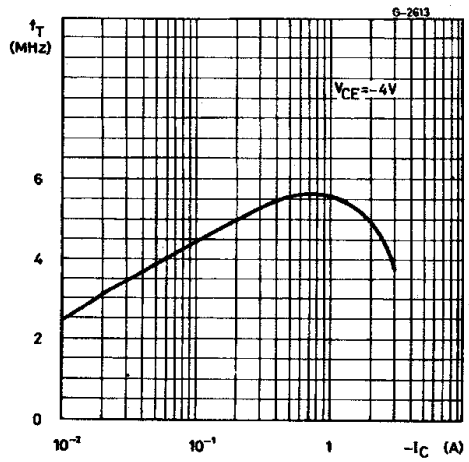
Base-Emitter Saturation Voltage (PNP type)



Transition Frequency (NPN type)

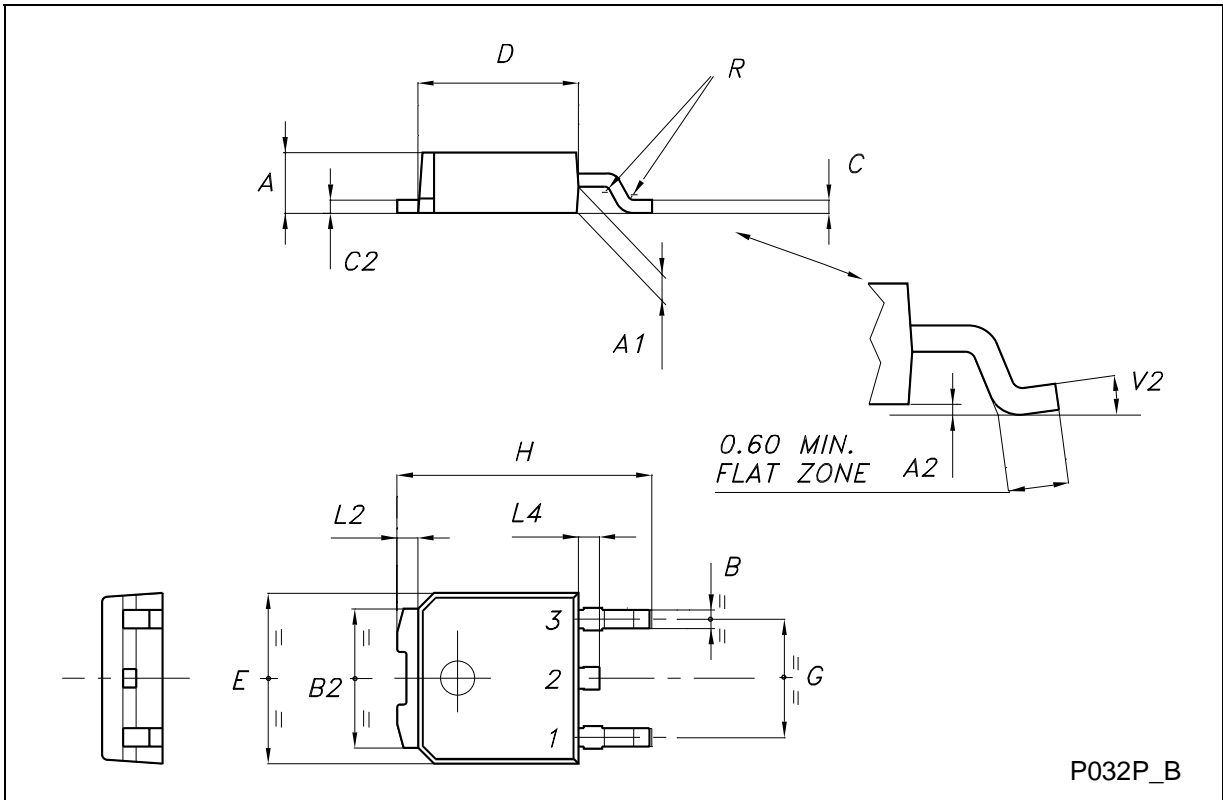


Transition Frequency (PNP type)



**TO-252 (DPAK) MECHANICAL DATA**

| DIM. | mm   |      |       | inch  |       |       |
|------|------|------|-------|-------|-------|-------|
|      | MIN. | TYP. | MAX.  | MIN.  | TYP.  | MAX.  |
| A    | 2.20 |      | 2.40  | 0.087 |       | 0.094 |
| A1   | 0.90 |      | 1.10  | 0.035 |       | 0.043 |
| A2   | 0.03 |      | 0.23  | 0.001 |       | 0.009 |
| B    | 0.64 |      | 0.90  | 0.025 |       | 0.035 |
| B2   | 5.20 |      | 5.40  | 0.204 |       | 0.213 |
| C    | 0.45 |      | 0.60  | 0.018 |       | 0.024 |
| C2   | 0.48 |      | 0.60  | 0.019 |       | 0.024 |
| D    | 6.00 |      | 6.20  | 0.236 |       | 0.244 |
| E    | 6.40 |      | 6.60  | 0.252 |       | 0.260 |
| G    | 4.40 |      | 4.60  | 0.173 |       | 0.181 |
| H    | 9.35 |      | 10.10 | 0.368 |       | 0.398 |
| L2   |      | 0.8  |       |       | 0.031 |       |
| L4   | 0.60 |      | 1.00  | 0.024 |       | 0.039 |
| V2   | 0°   |      | 8°    | 0°    |       | 0°    |



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