

## PNP SWITCHING SILICON TRANSISTOR

Qualified per MIL-PRF-19500/396

### Devices

|                |                |               |               |
|----------------|----------------|---------------|---------------|
| <b>2N3762</b>  | <b>2N3763</b>  | <b>2N3764</b> | <b>2N3765</b> |
| <b>2N3762L</b> | <b>2N3763L</b> |               |               |

### Qualified Level

**JAN**  
**JANTX**  
**JANTXV**

### MAXIMUM RATINGS

| Ratings  | Symbol            | 2N3762*<br>2N3764               | 2N3763*<br>2N3765             | Unit        |
|--|-------------------|---------------------------------|-------------------------------|-------------|
| Collector-Emitter Voltage                      | $V_{CEO}$         | 40                              | 60                            | Vdc         |
| Collector-Base Voltage                         | $V_{CBO}$         | 40                              | 60                            | Vdc         |
| Emitter-Base Voltage                           | $V_{EBO}$         | 5.0                             |                               | Vdc         |
| Collector Current                              | $I_C$             | 1.5                             |                               | Adc         |
|  |                   | 2N3762* <sup>1</sup><br>2N3763* | 2N3764 <sup>2</sup><br>2N3765 |             |
| Total Power Dissipation @ $T_A = +25^{\circ}C$ | $P_T$             | 1.0                             | 0.5                           | W           |
| Operating & Storage Junction Temp. Range       | $T_{op}, T_{stg}$ | -55 to +200                     |                               | $^{\circ}C$ |

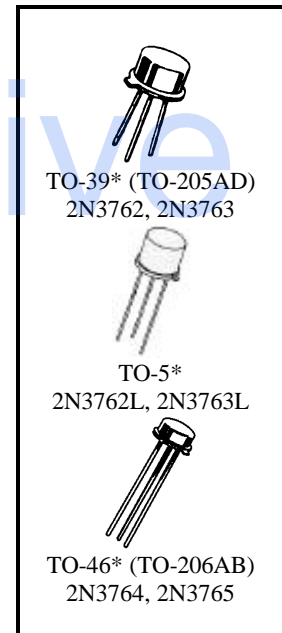
### THERMAL CHARACTERISTICS

| Characteristics                     | Symbol          | Max.               |                  | Unit          |
|-------------------------------------|-----------------|--------------------|------------------|---------------|
|                                     |                 | 2N3762*<br>2N3763* | 2N3764<br>2N3765 |               |
| Thermal Resistance Junction-to-Case | $R_{\theta JC}$ | 60                 | 88               | $^{\circ}C/W$ |

\*Electrical characteristics for "L" suffix devices are identical to the "non L" corresponding devices

1) Derate linearly at 5.71 mW/ $^{\circ}C$  for  $T_A > +25^{\circ}C$

2) Derate linearly at 2.86 mW/ $^{\circ}C$  for  $T_A > +25^{\circ}C$



\*See appendix A for package outline

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^{\circ}C$ unless otherwise noted)

| Characteristics | Symbol | Min. | Max. | Unit |
|-----------------|--------|------|------|------|
|-----------------|--------|------|------|------|

### OFF CHARACTERISTICS

|   |  |               |          |   |
|---|--|---------------|----------|---|
| Collector-Emitter Breakdown Current<br>$I_C = 10$ mAdc  | 2N3762, 2N3764<br>2N3763, 2N3765                                     | $V_{(BR)CEO}$ | 40<br>60 | Vdc   |
| Collector-Base Cutoff Current<br>$V_{CB} = 20$ Vdc<br>$V_{CB} = 30$ Vdc<br>$V_{CB} = 40$ Vdc<br>$V_{CB} = 60$ Vdc | 2N3762, 2N3764<br>2N3763, 2N3765<br>2N3762, 2N3764<br>2N3763, 2N3765 | $I_{CBO}$     |          | 100<br>100<br>10<br>10<br>$\eta$ Adc<br>$\mu$ Adc |

**2N3762, L, 2N3763, L, 2N3764, 2N3765 JAN SERIES**

**ELECTRICAL CHARACTERISTICS (con't)**

| Characteristics  | Symbol    | Min. | Max. | Unit             |
|--|-----------|------|------|------------------|
| Collector-Emitter Cutoff Current<br>$V_{EB} = 2.0 \text{ Vdc}, V_{CE} = 20 \text{ Vdc}$<br>$V_{EB} = 2.0 \text{ Vdc}, V_{CE} = 30 \text{ Vdc}$ | $I_{CEX}$ |      | 100  | $\eta\text{Adc}$ |
| 2N3762, 2N3764<br>2N3763, 2N3765   |           |      | 100  |                  |
| Emitter-Base Cutoff Current<br>$V_{EB} = 2.0 \text{ Vdc}$<br>$V_{EB} = 5.0 \text{ Vdc}$  | $I_{EBO}$ |      | 200  | $\eta\text{Adc}$ |
| All Types  |           |      | 10   |                  |
| 2N3762, 2N3764<br>2N3763, 2N3765   |           |      | 10   |                  |

**ON CHARACTERISTICS (3)**

|   |               |     |      |     |
|---|---------------|-----|------|-----|
| Forward-Current Transfer Ratio<br>$I_C = 10 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$<br>$I_C = 150 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$<br>$I_C = 500 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$<br>$I_C = 1.0 \text{ Adc}, V_{CE} = 1.5 \text{ Vdc}$<br>$I_C = 1.5 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$ | $h_{FE}$      |     | 35   |     |
| 2N3762, 2N3764  |               |     | 40   | 140 |
| 2N3763, 2N3765  |               |     | 40   | 120 |
|   |               |     | 20   | 80  |
|   |               |     | 30   | 20  |
| Collector-Emitter Saturation Voltage<br>$I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$<br>$I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$<br>$I_C = 500 \text{ mAdc}, I_B = 50 \text{ mAdc}$<br>$I_C = 1.0 \text{ Adc}, I_B = 100 \text{ mAdc}$  | $V_{CE(sat)}$ |     | 0.1  | Vdc |
|   |               |     | 0.22 |     |
|   |               |     | 0.5  |     |
|   |               |     | 0.9  |     |
|   |               |     |      |     |
| Base-Emitter Saturation Voltage<br>$I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$<br>$I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$<br>$I_C = 500 \text{ mAdc}, I_B = 50 \text{ mAdc}$<br>$I_C = 1.0 \text{ Adc}, I_B = 100 \text{ mAdc}$   | $V_{BE(sat)}$ |     | 0.8  | Vdc |
|   |               |     | 1.0  |     |
|   |               |     | 1.2  |     |
|   |               |     | 1.4  |     |
|   |               | 0.9 |      |     |

**DYNAMIC CHARACTERISTICS**

|  |            |  |     |     |
|--|------------|--|-----|-----|
| Forward Current Transfer Ratio, Magnitude<br>$I_C = 50 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 100 \text{ MHz}$ | $ h_{fe} $ |  | 1.8 | 6.0 |
| 2N3762, 2N3764<br>2N3763, 2N3765   |            |  | 1.5 | 6.0 |
| Output Capacitance<br>$V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$              | $C_{obo}$  |  | 25  | pF  |
| Input Capacitance<br>$V_{EB} = 0.5 \text{ Vdc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$              | $C_{ibo}$  |  | 80  | pF  |

**SWITCHING CHARACTERISTICS**

|              |   |       |  |     |                |
|--------------|---|-------|--|-----|----------------|
| Delay Time   | $V_{CC} = 30 \text{ Vdc}, V_{EB} = 0,$<br>$I_C = 1.0 \text{ mAdc}, I_{B1} = 100 \text{ mAdc}$ | $t_d$ |  | 8.0 | $\eta\text{s}$ |
| Rise Time    |   | $t_r$ |  | 35  | $\eta\text{s}$ |
| Storage Time | $V_{CC} = 30 \text{ Vdc}, V_{EB} = 0,$<br>$I_C = 1.0 \text{ mAdc}, I_{B1} = 100 \text{ mAdc}$ | $t_s$ |  | 80  | $\eta\text{s}$ |
| Fall Time    |   | $t_f$ |  | 35  | $\eta\text{s}$ |

(3) Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq$  2.0%.