

SILICON PLANAR
SWITCHING TRANSISTOR

2N 2904A,05A-TD-39
2N 2906A,07A-TD-18
PNP



SWITCHING AND LINEAR APPLICATION, DC AND VHF AMPLIFIERS APPLICATIONS.

| DESCRIPTION | SYMBOL | 2904A,05A | 2906A,07A | UNITS |
|---|----------------------------------|-------------|-----------|----------|
| Collector-Emitter Voltage | V _{CEO} | 60 | 60 | V |
| Collector-Base Voltage | V _{CBO} | 60 | 60 | V |
| Emitter-Base Voltage | V _{EB0} | 5 | 5 | V |
| Collector Current | I _{CM} | 600 | 600 | mA |
| Power Dissipation At T _a =25 deg C | PD | 600 | 400 | mW |
| Derate Above 25deg C | | 3.43 | 2.28 | mW/deg C |
| At T _c =25 deg C | PD | 3 | 1.8 | W |
| Derate Above 25deg C | | 17.2 | 10.3 | mW/deg C |
| Operating & Storage Junction | T _j ,T _{stg} | -65 TO +200 | | deg C |

ELECTRICAL CHARACTERISTICS (T_a = 25 deg C unless otherwise specified)

| CHARACTERISTICS | SYMBOL | TEST CONDITION | VALUE | | UNIT |
|--------------------------------------|------------------------|---|-------|-----|------|
| | | | MIN | MAX | |
| Collector Emitter Breakdown Voltage | BV _{CEO} † | I _C = 10 mA, I _B = 0 | 60 | - | V |
| Collector Base Breakdown Voltage | BV _{CBO} | I _C = 10 uA, I _E = 0 | 60 | - | V |
| Emitter Base Breakdown Voltage | BV _{EB0} | I _E = 10 uA, I _C = 0 | 5 | - | V |
| Collector Cutoff Current | I _{CBO} | V _{CB} = 50V, I _E = 0 | - | 10 | nA |
| | | V _{CB} = 50V, I _E = 0 T _a = 150 deg C | - | 10 | nA |
| Collector Cutoff Current | I _{CEx} | V _{CE} = 30V, V _{BE} = 0.5V | - | 50 | nA |
| Base Current | I _B | V _{CE} = 30V, V _{BE} = 0.5V | - | 50 | nA |
| Collector-Emitter Saturation Voltage | V _{CE (sat)†} | I _C = 150 mA, I _B = 15 mA | - | 0.4 | V |
| Base-Emitter Saturation Voltage | V _{BE (sat)†} | I _C = 500 mA, I _B = 50 mA | - | 1.6 | V |
| Collector-Emitter Saturation Voltage | V _{CE (sat)†} | I _C = 150 mA, I _B = 15 mA | - | 1.3 | V |
| Base-Emitter Saturation Voltage | V _{BE (sat)†} | I _C = 500 mA, I _B = 50 mA | - | 2.6 | V |

CONTD..2

| CHARACTERISTICS | SYMBOL | TEST CONDITION | 2N2904A, 06A | | 2N2905A, 07A | | UNIT |
|--|--------|--|--------------|-----|--------------|-----|------|
| | | | MIN | MAX | MIN | MAX | |
| D.C. Current Gain | hFE | IC=0.1 mA, VCE=10 V | 40 | - | 75 | - | |
| | | IC=1mA, VCE=10 V | 40 | - | 100 | - | |
| | | IC=10 mA, VCE=10 V | 40 | - | 100 | - | |
| | | IC=150 mA, VCE=10 V† | 40 | 120 | 100 | 300 | |
| | | IC=500 mA, VCE=10V† | 40 | - | 50 | - | |
| DYNAMIC CHARACTERISTICS | | | | | | | |
| CHARACTERISTICS | SYMBOL | TEST CONDITION | MIN | MAX | UNITS | | |
| Transition Frequency | fT | IC=50 mA, VCE= 20 V, f=100 MHz | 200 | - | MHz | | |
| Output Capacitance | Cob | VCE=10V, IE=0, f=100KHz | - | 8 | pF | | |
| Input Capacitance | Cib | VBE=2V, IC=0, f=100KHz | - | 30 | pF | | |
| SWITCHING CHARACTERISTICS | | | | | | | |
| Delay Time | td | | - | 10 | ns | | |
| Rise Time | tr | IC=150mA, IB1=15mA VCC=30V | - | 40 | ns | | |
| Turn-On Time | ton | | - | 45 | ns | | |
| Storage Time | ts | | - | 80 | ns | | |
| Fall Time | tf | IC=150 mA, IB1=15mA IB2=15 mA, VCC=6V | - | 30 | ns | | |
| Turn-Off Time | toff | | - | 100 | ns | | |
| † Pulse condition : Length ≤ 300 us, Duty cycle ≤ 2% | | | | | | | |
| ZA3009930E/1H | | | | | | | |