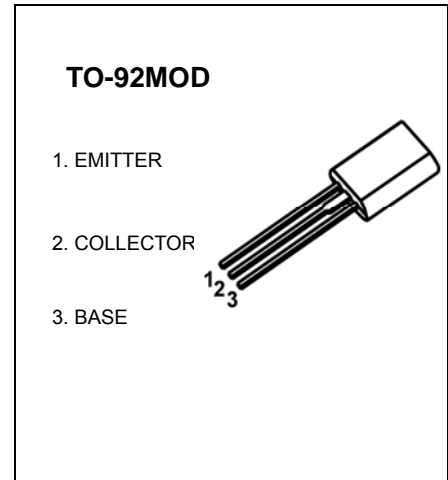


TO-92MOD Plastic-Encapsulate Transistors

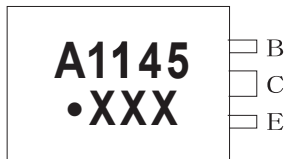
2SA1145 TRANSISTOR (PNP)

FEATURES

- Complementary to 2SC2705
- Small Collector Output Capacitance: $C_{ob}=2.5\text{pF(Typ.)}$
- High Transition Frequency: $f_T=200\text{MHz(Typ.)}$

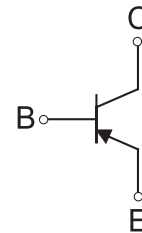


MARKING



A1145=Device code
Solid dot= Green molding compound device,
if none, the normal device
XXX=Code

Equivalent Circuit



ORDERING INFORMATION

| Part Number | Package | Packing Method | Pack Quantity |
|-------------|----------|----------------|---------------|
| 2SA1145 | TO-92MOD | Bulk | 500pcs/Bag |
| 2SA1145-TA | TO-92MOD | Tape | 2000pcs/Box |

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|-----------|-------------------------------|-------------|------------------|
| V_{CBO} | Collector-Base Voltage | -150 | V |
| V_{CEO} | Collector-Emitter Voltage | -150 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V |
| I_C | Collector Current -Continuous | -50 | mA |
| P_C | Collector Power Dissipation | 0.8 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature | -55 to +150 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS

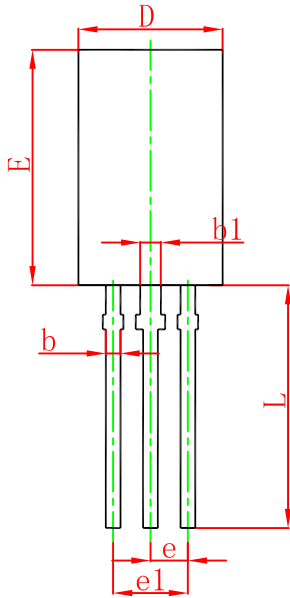
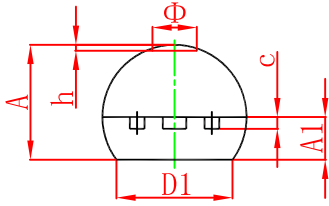
$T_a=25^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|--|------|-----|------|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=-100\ \mu\text{A}, I_E=0$ | -150 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=-1\text{mA}, I_B=0$ | -150 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=-100\ \mu\text{A}, I_C=0$ | -5 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=-150\ \text{V}, I_E=0$ | | | -0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=-5\ \text{V}, I_C=0$ | | | -0.1 | μA |
| DC current gain | h_{FE} | $V_{CE}=-5\ \text{V}, I_C=-10\text{mA}$ | 80 | | 240 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-10\text{mA}, I_B=-1\text{mA}$ | | | -1 | V |
| Base-emitter voltage | V_{BE} | $V_{CE}=-5\ \text{V}, I_C=-10\text{mA}$ | | | -0.8 | V |
| Transition frequency | f_T | $V_{CE}=-5\ \text{V}, I_C=-10\text{mA}$ | | 200 | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}=-10\ \text{V}, I_E=0, f=1\ \text{MHz}$ | | 2.5 | | pF |

CLASSIFICATION OF h_{FE}

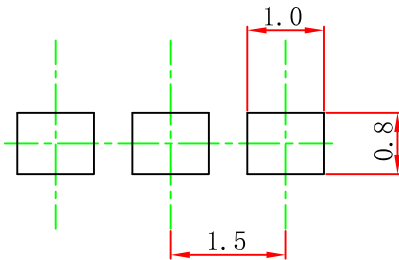
| | | |
|---------|--------|---------|
| Rank | O | Y |
| Range | 80-160 | 120-240 |
| Marking | | |

TO-92MOD Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 4.800 | 5.000 | 0.189 | 0.197 |
| A1 | 1.730 | 2.030 | 0.068 | 0.080 |
| b | 0.440 | 0.600 | 0.017 | 0.024 |
| b1 | 0.940 | 1.100 | 0.037 | 0.043 |
| c | 0.350 | 0.450 | 0.014 | 0.018 |
| D | 5.900 | 6.100 | 0.232 | 0.240 |
| D1 | 4.000 | | 0.157 | |
| E | 8.500 | 8.700 | 0.335 | 0.343 |
| e | 1.500 TYP. | | 0.059 TYP. | |
| e1 | 2.900 | 3.100 | 0.114 | 0.122 |
| L | 13.800 | 14.200 | 0.543 | 0.559 |
| Φ | | 1.600 | | 0.063 |
| h | 0.000 | 0.380 | 0.000 | 0.015 |

TO-92MOD Suggested Pad Layout



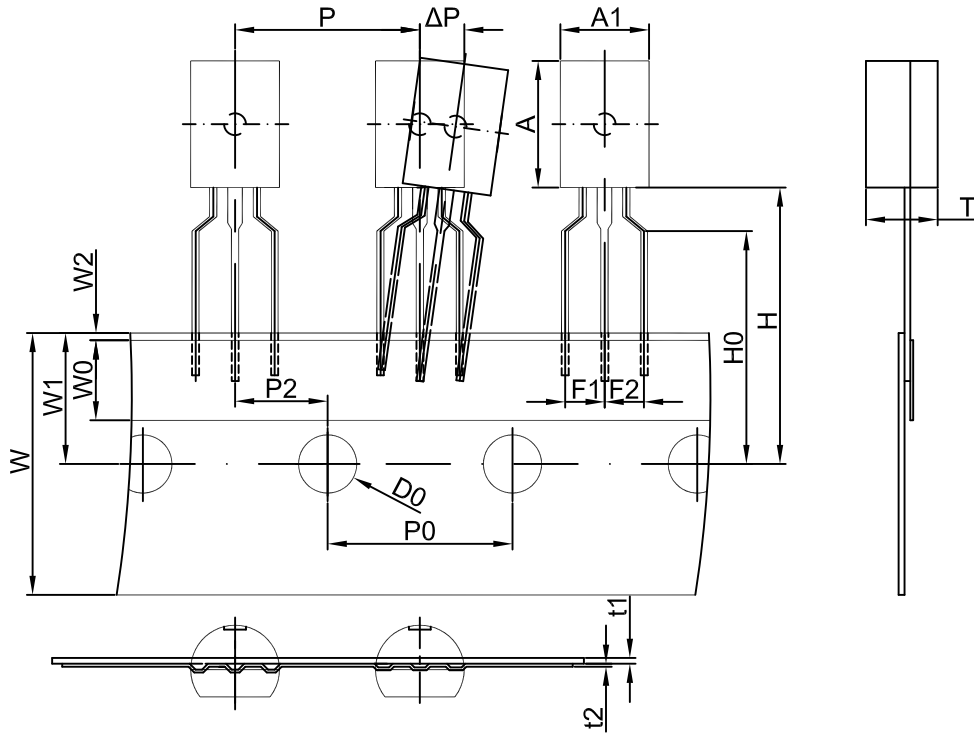
Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

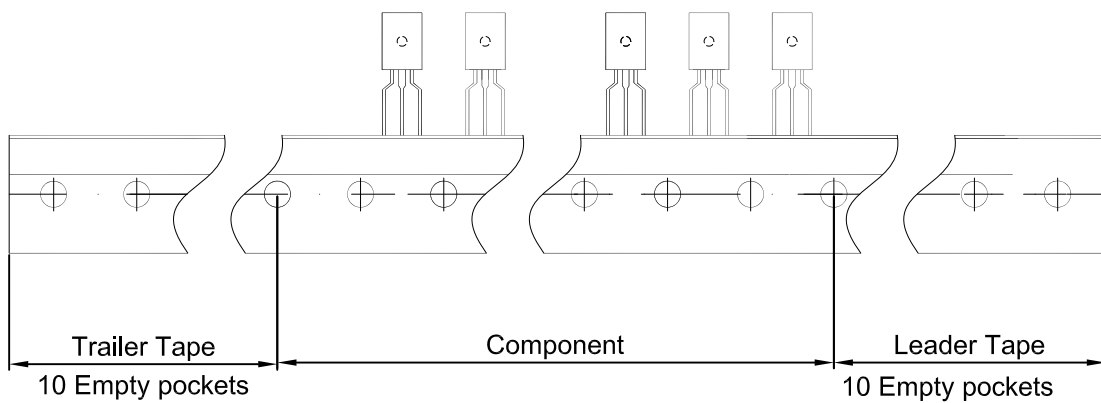
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TO-92MOD PACKAGE TAPEING DIMENSION



Dimensions are in millimeter

| A1 | A | T | P | P0 | P2 | F1 | F2 | W |
|-----|-----|-----|------|------|------|-----|-----|------|
| 6.0 | 8.6 | 4.9 | 12.7 | 12.7 | 6.35 | 2.5 | 2.5 | 18.0 |
| W0 | W1 | W2 | H | H0 | D0 | t1 | t2 | ΔP |
| 6.0 | 9.0 | 1.0 | 19.0 | 16.0 | 4.0 | 0.4 | 0.2 | 0 |



| Package | Box | Box Size(mm) | Carton | Carton Size(mm) |
|----------|----------|--------------|------------|-----------------|
| TO-92MOD | 2000 pcs | 333×245×43 | 20,000 pcs | 573×404×266 |