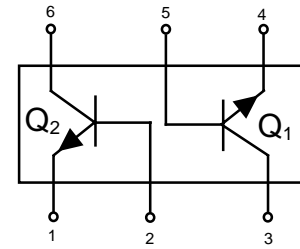




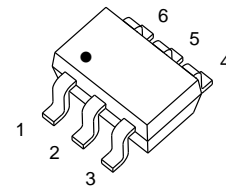
UMX1N Dual General Purpose Transistors

NPN Duals

These transistors are designed for general purpose amplifier applications. They are housed in the SOT-363/SC-88 which is designed for low power surface mount applications.



Marking : 1F



SOT-363

Q₁ MAXIMUM RATING (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|----------------------------|------------------|--------|------|
| Collector- Base Voltage | V _{CB0} | 50 | V |
| Collector- Emitter Voltage | V _{CEO} | 45 | V |
| Emitter- Base Voltage | V _{EBO} | 6 | mA |
| Collector Current | I _C | 100 | mA |
| Base Current | I _B | 20 | mA |

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Q₁ Q₂ MAXIMUM RATING (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|------------------|------------|------|
| Collector Power Dissipation | P _C * | 380 | mW |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature Range | T _{stg} | - 55 ~ 150 | °C |

* Total Raing. FR- 5 = 1.0 x 0.75 x 0.062 in



Q₁ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT. |
|--|----------------------|---|------|------|------|-------|
| Collector Cut - off Current | I _{CBO} | V _{CB} =30V, I _E =0 | - | - | 0.1 | μA |
| Emitter Cut - off Current | I _{EBO} | V _{EB} =5V, I _C =0 | - | - | 0.1 | μA |
| DC Current Gain | h _{FE} | V _{CE} =5V, I _C =2mA | 200 | - | 475 | |
| Collector - Emitter Saturation Voltage | V _{CE(SAT)} | I _C =100mA, I _b =5mA | - | - | 0.60 | V |
| Transition Frequency | f _T | V _{CE} =5V, I _C =10mA | 100 | - | - | MHz |
| Collector Output Capacitance | C _{ob} | V _{CB} =10V, I _e =0, f=1MHz | - | - | 4.5 | pF |
| Noise Figure | NF | V _{ce} =5V, I _c =0.2mA, f=1kHz, R _s =2kΩ | - | - | 10 | dB |

Q₂ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT. |
|--|----------------------|---|------|------|------|-------|
| Collector Cut - off Current | I _{CBO} | V _{CB} =30V, I _E =0 | - | - | 0.1 | μA |
| Emitter Cut - off Current | I _{EBO} | V _{EB} =5V, I _C =0 | - | - | 0.1 | μA |
| DC Current Gain | h _{FE} | V _{CE} =5V, I _C =2mA | 200 | - | 475 | |
| Collector - Emitter Saturation Voltage | V _{CE(SAT)} | I _C =100mA, I _b =5mA | - | - | 0.60 | V |
| Transition Frequency | f _T | V _{CE} =5V, I _C =10mA | 100 | - | - | MHz |
| Collector Output Capacitance | C _{ob} | V _{CB} =10V, I _e =0, f=1MHz | - | - | 4.5 | pF |
| Noise Figure | NF | V _{ce} =5V, I _c =0.2mA, f=1kHz, R _s =2kΩ | - | - | 10 | dB |



TYPICAL CHARACTERISTICS

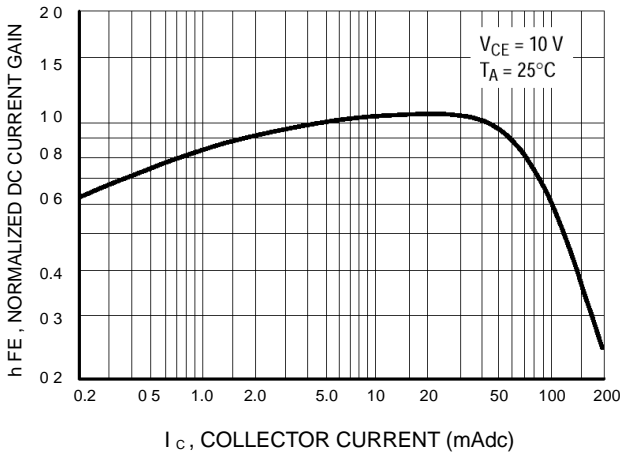


Figure 1. Normalized DC Current Gain

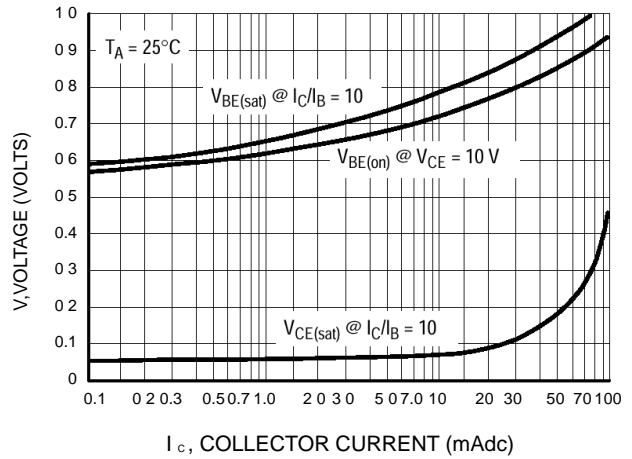


Figure 2. "Saturation" and "On" Voltages

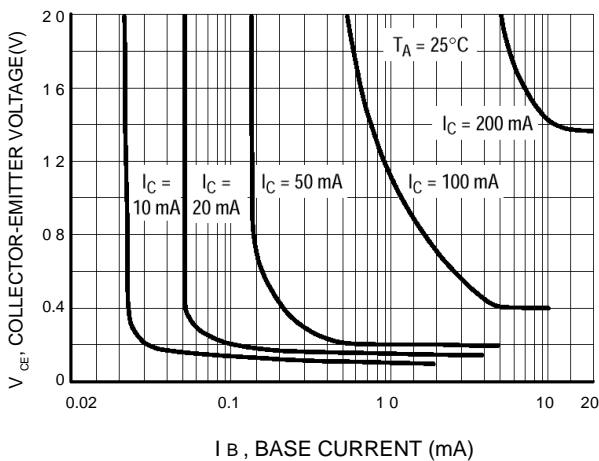


Figure 3. Collector Saturation Region

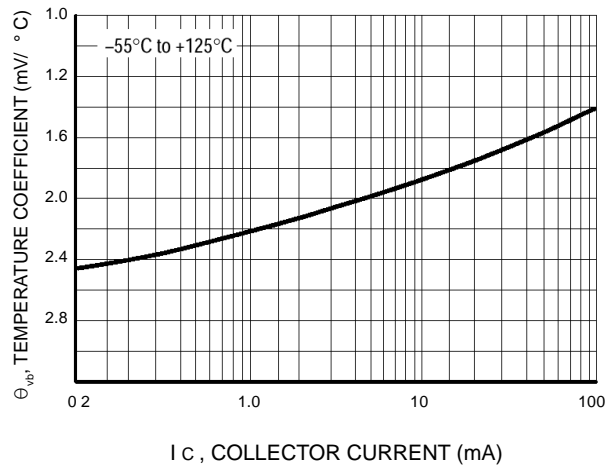


Figure 4. Base-Emitter Temperature Coefficient

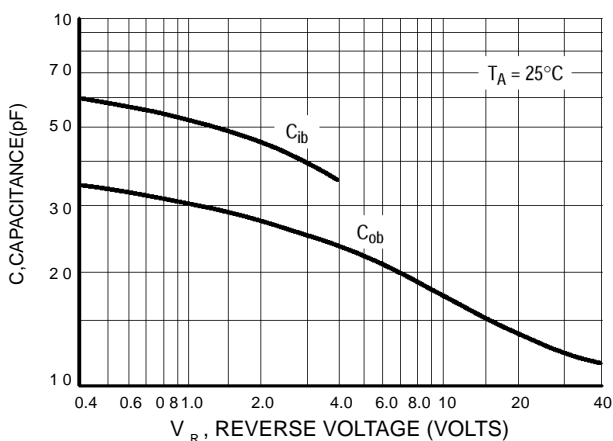


Figure 5. Capacitances

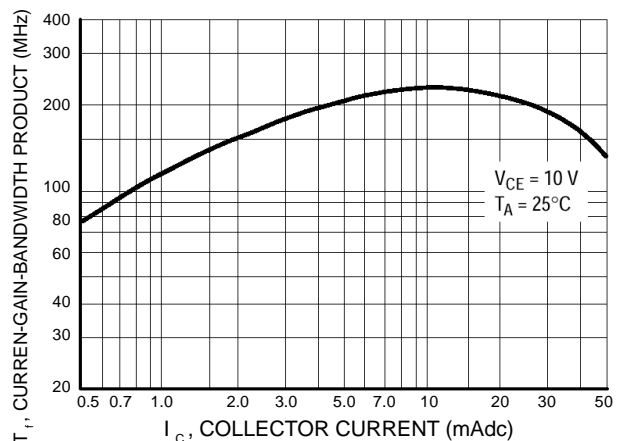


Figure 6. Current-Gain - Bandwidth Product

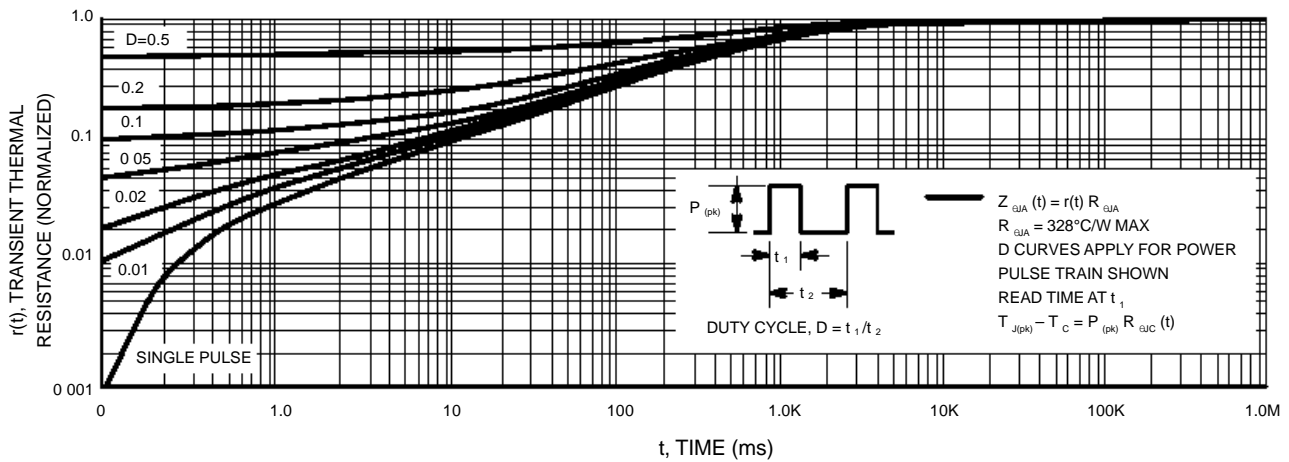


Figure 11. Thermal Response

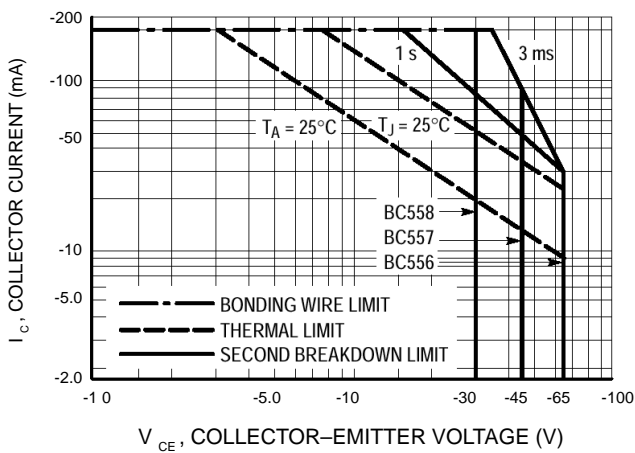


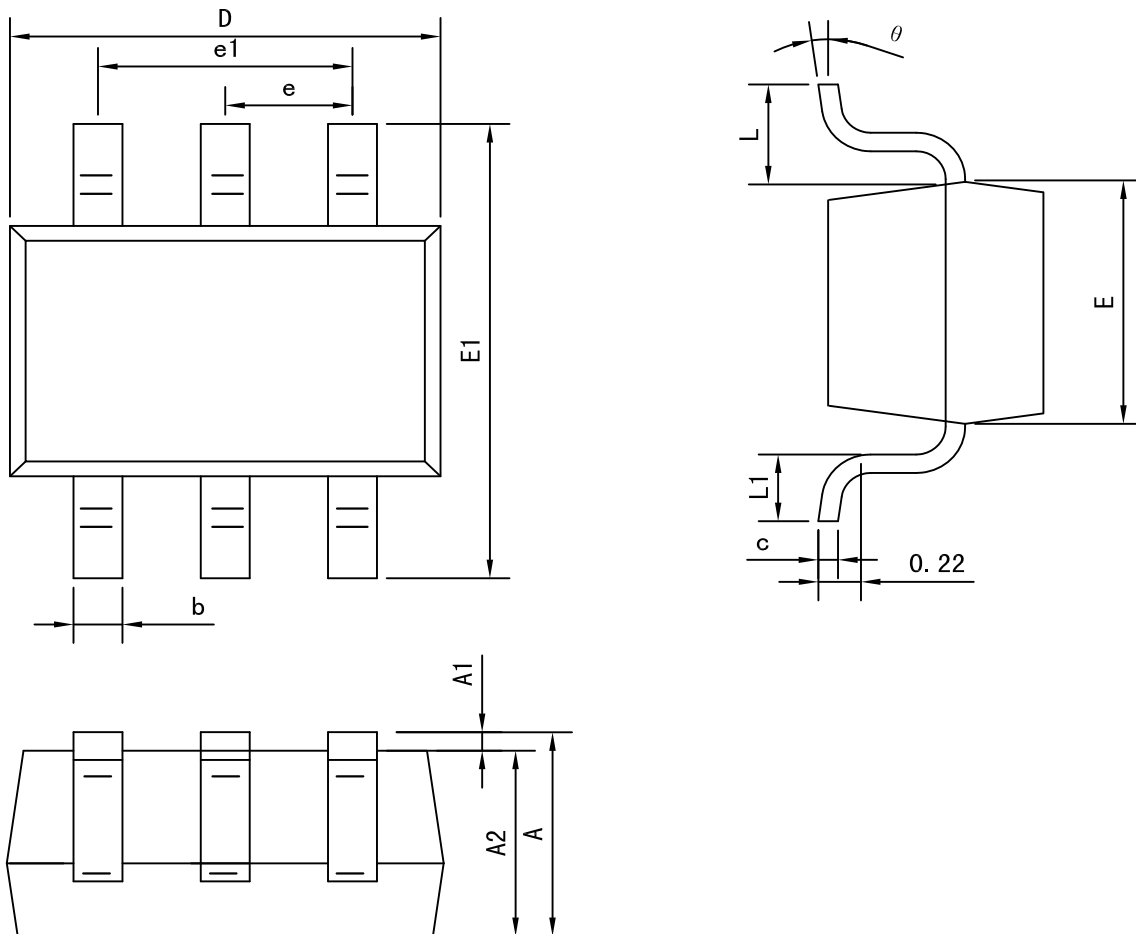
Figure 12. Active Region Safe Operating Area

The safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation. Collector load lines for specific circuits must fall below the limits indicated by the applicable curve.

The data of Figure 12 is based upon $T_{J(pk)} = 150^\circ\text{C}$; T_C or T_A is variable depending upon conditions. Pulse curves are valid for duty cycles to 10% provided $T_{J(pk)} \leq 150^\circ\text{C}$. $T_{J(pk)}$ may be calculated from the data in Figure 12. At high case or ambient temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by the secondary breakdown.



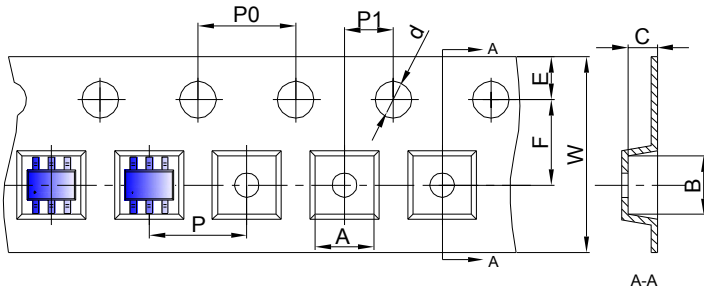
SOT-363 Package outline dimensions



| Symbol | Dimension in Millimeters | |
|----------|--------------------------|-------|
| | Min | Max |
| A | 0.900 | 1.100 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.000 |
| b | 0.150 | 0.350 |
| c | 0.080 | 0.150 |
| D | 2.000 | 2.200 |
| E | 1.150 | 1.350 |
| E1 | 2.150 | 2.450 |
| e | 0.650 TYP | |
| e1 | 1.200 | 1.400 |
| L | 0.525 REF | |
| L1 | 0.260 | 0.460 |
| θ | 0° | 8° |



SOT-363 Embossed Carrier Tape



Packaging Description:

SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-363 | 2.25 | 2.55 | 1.20 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-363 Tape Leader and Trailer

