

Transistors

PNP Medium Power Transistor (Switching)

UMT2907A / SST2907A / MMST2907A

●Features

- 1) $BV_{CEO} < -60V$ ($I_C = -10mA$)
- 2) Complements the UMT2222A / SST2222A / MMST2222A.

●Package, marking and packaging specifications

| Part No. | UMT2907A | SST2907A | MMST2907A |
|------------------------------|----------|----------|-----------|
| Packaging type | UMT3 | SST3 | SMT3 |
| Marking | R2F | R2F | R2F |
| Code | T106 | T116 | T146 |
| Basic ordering unit (pieces) | 3000 | 3000 | 3000 |

●Absolute maximum ratings ($T_a = 25^\circ C$)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-----------|-------------|------------|
| Collector-base voltage | V_{CBO} | -60 | V |
| Collector-emitter voltage | V_{CEO} | -60 | V |
| Emitter-base voltage | V_{EBO} | -5 | V |
| Collector current | I_C | -0.6 | A |
| Collector power dissipation | P_C | 0.2 | W |
| | | 0.35 | W * |
| Junction temperature | T_J | 150 | $^\circ C$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ C$ |

* Mounted on a 7x5x0.6mm ceramic substrate.

●Electrical characteristics ($T_a = 25^\circ C$)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV_{CBO} | -60 | - | - | V | $I_C = -10\mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | -60 | - | - | V | $I_C = -10mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | -5 | - | - | V | $I_E = -10\mu A$ |
| Collector cutoff current | I_{CBO} | - | - | -100 | nA | $V_{CB} = -50V$ |
| | I_{CES} | - | - | -100 | nA | $V_{CB} = -30V$ |
| Emitter cutoff current | I_{EBO} | - | - | -100 | nA | $V_{EB} = -3V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | - | -0.4 | V | $I_C/I_B = -150mA / -15mA$ |
| | | - | - | -1.6 | V | $I_C/I_B = -500mA / -50mA$ |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | - | - | -1.3 | V | $I_C/I_B = -150mA / -15mA$ |
| | | - | - | -2.6 | V | $I_C/I_B = -500mA / -50mA$ |
| DC current transfer ratio | h_{FE} | 75 | - | - | - | $V_{CE} = -10V, I_C = -0.1mA$ |
| | | 100 | - | - | - | $V_{CE} = -10V, I_C = -1mA$ |
| | | 100 | - | - | - | $V_{CE} = -10V, I_C = -10mA$ |
| | | 100 | - | 300 | - | $V_{CE} = -10V, I_C = -150mA$ |
| | | 50 | - | - | - | $V_{CE} = -10V, I_C = -500mA$ |
| Transition frequency | f_T | 200 | - | - | MHz | $V_{CE} = -20V, I_E = 50mA, f = 100MHz$ |
| Collector output capacitance | C_{ob} | - | - | 8 | pF | $V_{CB} = -10V, f = 100kHz$ |
| Emitter input capacitance | C_{ib} | - | - | 30 | pF | $V_{EB} = -2V, f = 100kHz$ |
| Turn-on time | t_{on} | - | - | 50 | ns | $V_{CC} = -30V, V_{BE(OFF)} = -1.5V, I_C = -150mA, I_{B1} = -15mA$ |
| Delay time | t_d | - | - | 10 | ns | $V_{CC} = -30V, V_{BE(OFF)} = -1.5V, I_C = -150mA, I_{B1} = -15mA$ |
| Rise time | t_r | - | - | 40 | ns | $V_{CC} = -30V, V_{BE(OFF)} = -1.5V, I_C = -150mA, I_{B1} = -15mA$ |
| Turn-off time | t_{off} | - | - | 100 | ns | $V_{CC} = -30V, I_C = -150mA, I_{B1} = I_{B2} = -15mA$ |
| Storage time | t_{stg} | - | - | 80 | ns | $V_{CC} = -30V, I_C = -150mA, I_{B1} = I_{B2} = -15mA$ |
| Fall time | t_f | - | - | 30 | ns | $V_{CC} = -30V, I_C = -150mA, I_{B1} = I_{B2} = -15mA$ |

●Dimensions (Unit : mm)

UMT2907A

ROHM : UMT3
EIAJ : SC-70

(1) Emitter
(2) Base
(3) Collector

SST2907A

ROHM : SST3

(1) Emitter
(2) Base
(3) Collector

MMST2907A

ROHM : SMT3
EIAJ : SC-59

(1) Emitter
(2) Base
(3) Collector

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●Electrical characteristic curves

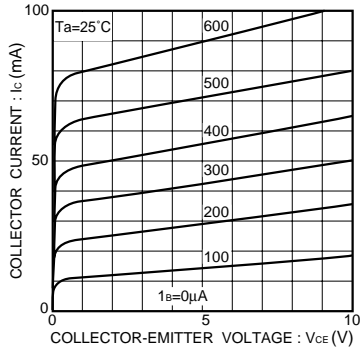


Fig.1 Grounded emitter output characteristics

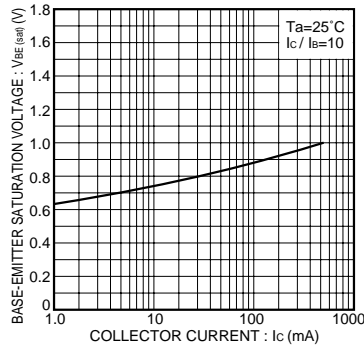


Fig.2 Base-emitter saturation voltage vs. collector current

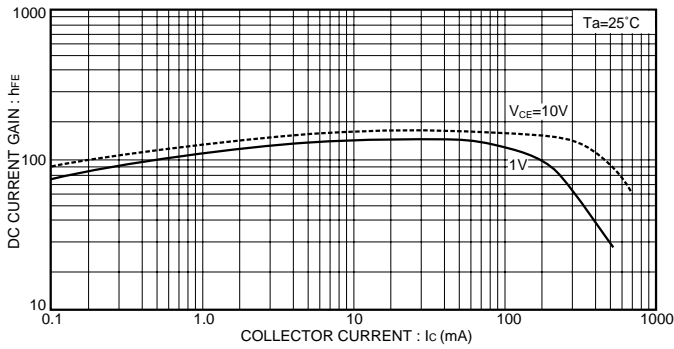


Fig.3 DC current gain vs. collector current (I)

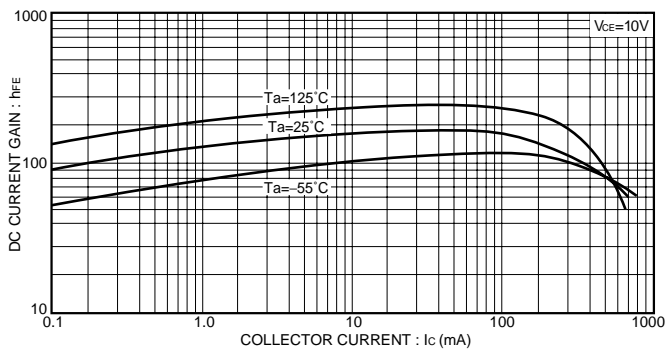


Fig.4 DC current gain vs. collector current (II)

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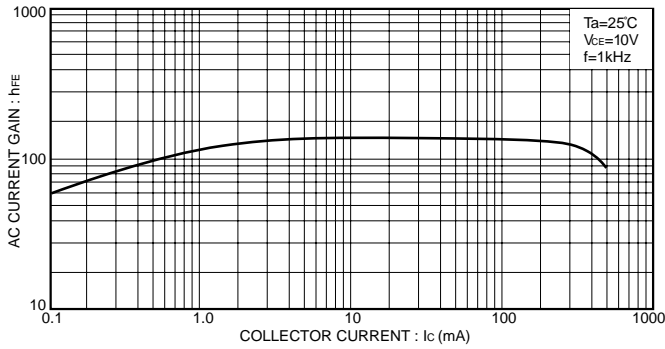


Fig.5 AC current gain vs. collector current

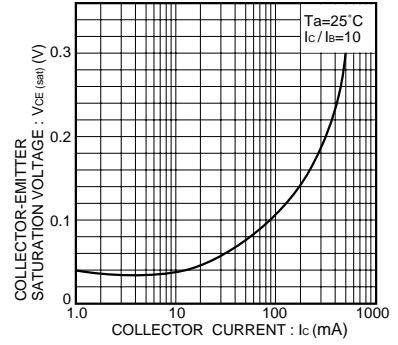


Fig.6 Collector-emitter saturation voltage vs. collector current

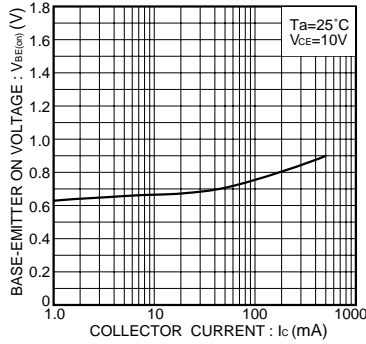


Fig.7 Grounded emitter propagation characteristics

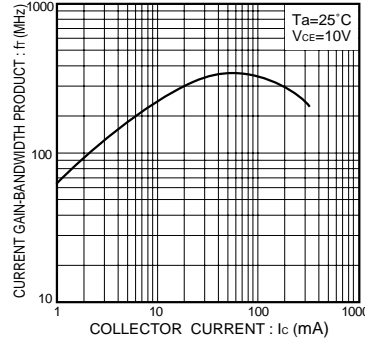


Fig.8 Gain bandwidth product vs. collector current

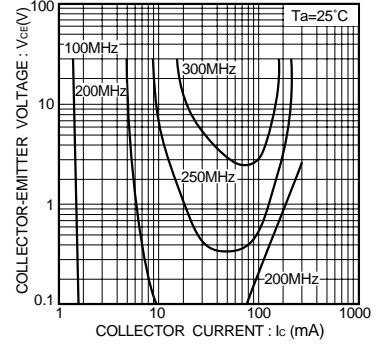


Fig.9 Gain bandwidth product

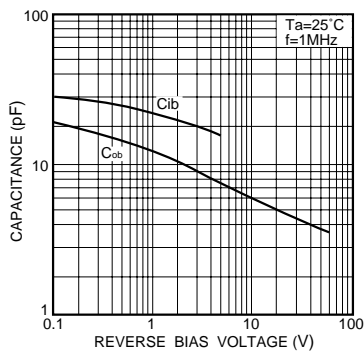


Fig.10 Input/output capacitance vs. voltage

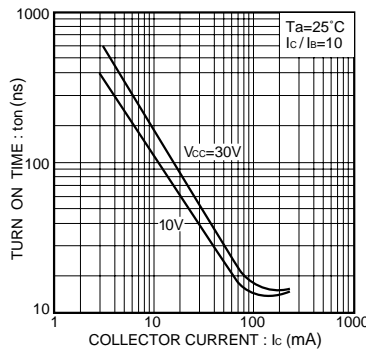


Fig.11 Turn-on time vs. collector current

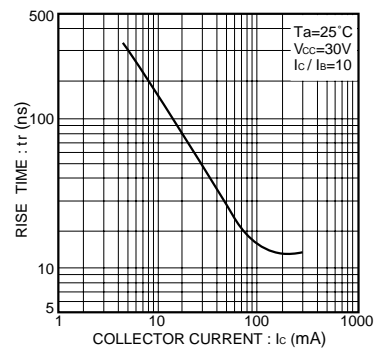


Fig.12 Rise time vs. collector current

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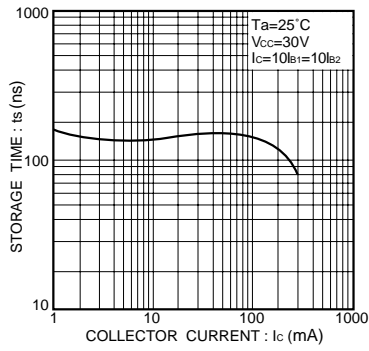


Fig.13 Storage time vs. collector current

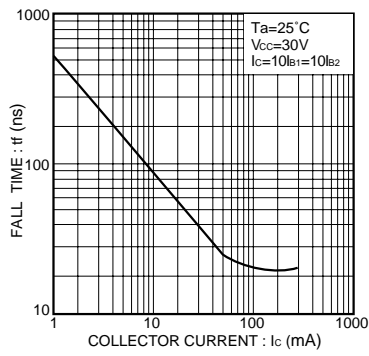


Fig.14 Fall time vs. collector current

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