

PNP Medium Power Transistor (Switching)

UMT2907A / SST2907A/MMST2907A / RXT2907A / PN2907A

●Features

- 1) $BV_{CE0} < -40V$ ($I_c = -10mA$)
- 2) Complements the UMT2222A/SST2222A/MMST2222A/RXT2222A/PN2222A.

●Package, marking and packaging specifications

| Type | UMT2907A | SST2907A | MMST2907A | RXT2907A | PN2907A |
|------------------------------|----------|----------|-----------|----------|---------|
| Package | UMT3 | SST3 | SMT3 | MPT3 | TO-92 |
| Marking | R2F | R2F | R2F | AC* | — |
| Code | T108 | T116 | T146 | T100 | T83 |
| Basic ordering unit (pieces) | 3000 | 3000 | 3000 | 1000 | 3000 |

* Indicates lot number.

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

| Parameter | Symbol | Limite | Unit |
|-----------------------------|-------------------------------|---------|------------|
| Collector-base voltage | V_{CB0} | -60 | V |
| Collector-emitter voltage | V_{CE0} | -60 | V |
| Emitter-base voltage | V_{EB0} | -5 | V |
| Collector current | I_c | -0.6 | A |
| Collector power dissipation | UMT2907A, SST2907A, MMST2907A | 0.2 | W |
| | RXT2907A | 0.5 | |
| | PN2907A | 0.625 | |
| | | | |
| Junction temperature | T_j | 150 | $^\circ C$ |
| Storage temperature | T_{stg} | -55~150 | $^\circ C$ |

●External dimensions (Units : 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

RXT2907A

ROHM : MPT3
EIAJ : SC-62

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

PN2907A

ROHM : TO-92
EIAJ : SC-43

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

USA & European specification models

(SPEC-A31)

●Electrical characteristics (Ta = 25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CEO} | -60 | — | — | V | I _c =10 μA |
| Collector-emitter breakdown voltage | BV _{CE0} | -60 | — | — | V | I _c =10mA |
| Emitter-base breakdown voltage | BV _{EB0} | -5 | — | — | V | I _e =10 μA |
| Collector cutoff current | I _{CEO} | — | — | -100 | nA | V _{CE} =-50V |
| | I _{CEB} | — | — | -100 | nA | V _{CE} =-30V |
| Emitter cutoff current | I _{EB0} | — | — | -100 | nA | V _{EB} =-3V |
| | I _{EBB} | — | — | -100 | nA | V _{EB} =-3V |
| Collector-emitter saturation voltage | V _{CE(sat)} | — | — | -0.4 | V | I _c /I _b =-150mA/-15mA |
| | | — | — | -1.6 | | I _c /I _b =-500mA/-50mA |
| Base-emitter saturation voltage | V _{BE(sat)} | 0.6 | — | -1.3 | V | I _c /I _b =-150mA/-15mA |
| | | — | — | -2.6 | | 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 _c =-50mA, f=100MHz |
| Output capacitance | C _{ob} | — | — | 8 | pF | V _{CE} =-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 |

●Electrical characteristic curves

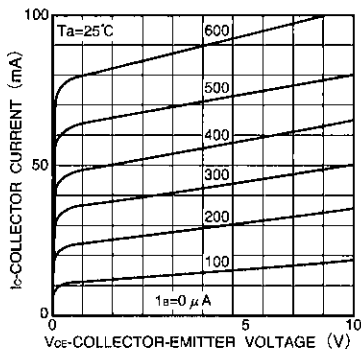


Fig.1 Grounded emitter output characteristics

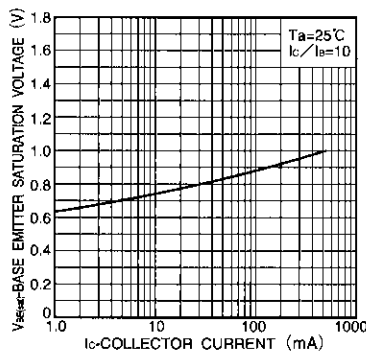


Fig.2 Base-emitter saturation voltage vs. collector current

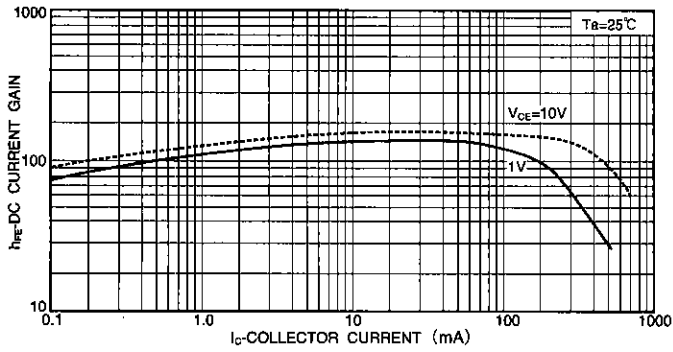


Fig.3 DC current gain vs. collector current (I)

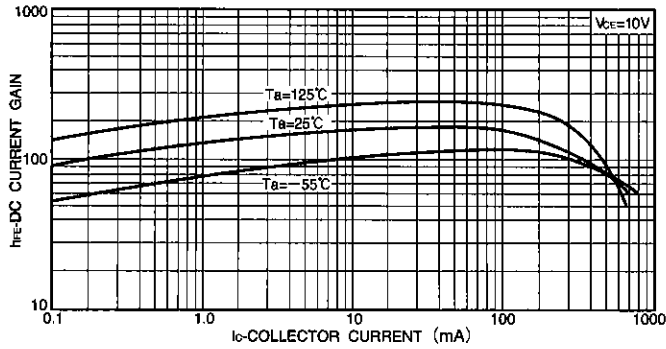


Fig.4 DC current gain vs. collector current (II)

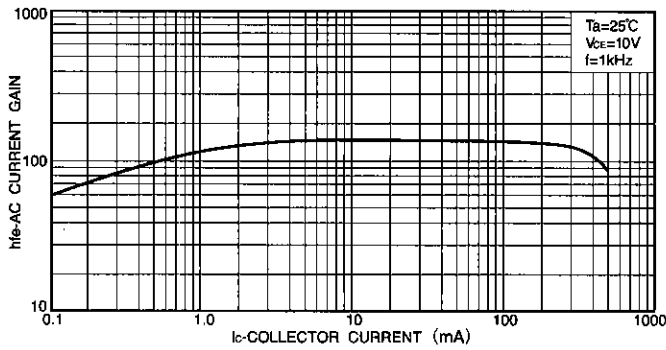


Fig.5 AC current gain vs. collector current

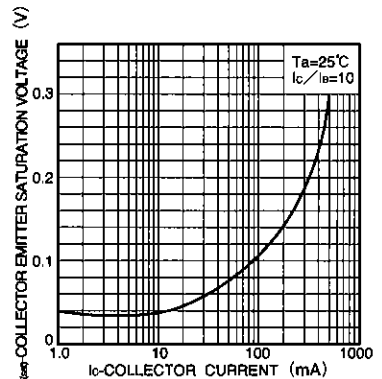


Fig.6 Collector-emitter saturation voltage vs. collector current



USA & European specification models

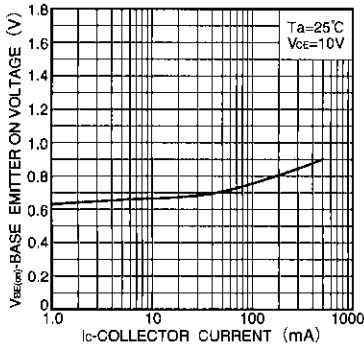


Fig.7 Grounded emitter propagation characteristics

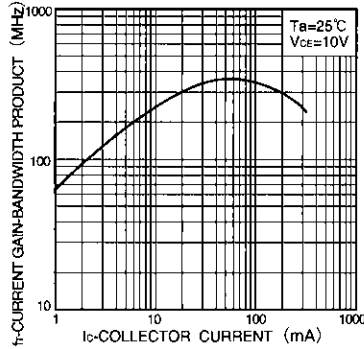


Fig.8 Gain bandwidth product vs. collector current

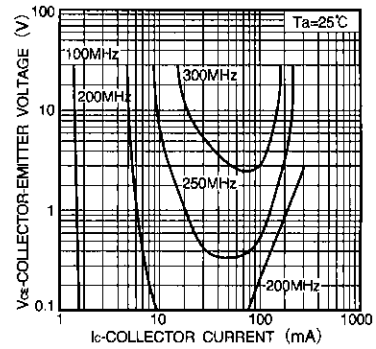


Fig.9 Gain bandwidth product

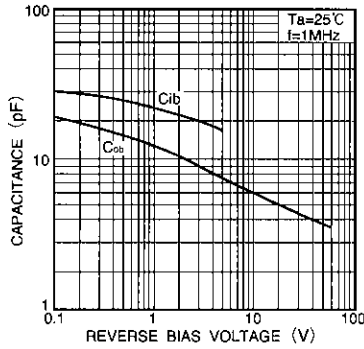


Fig.10 Input/output capacitance vs. voltage

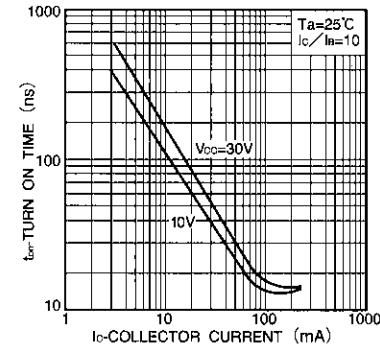


Fig.11 Turn-on time vs. collector current

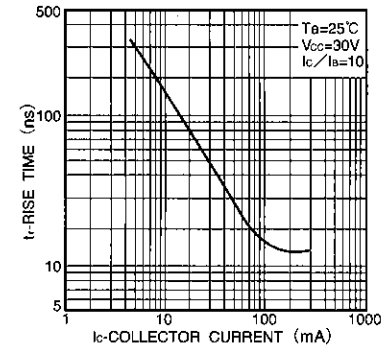


Fig.12 Rise time vs. collector current

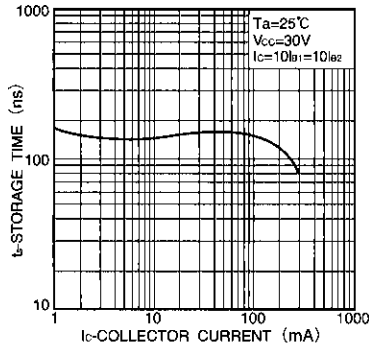


Fig.13 Storage time vs. collector current

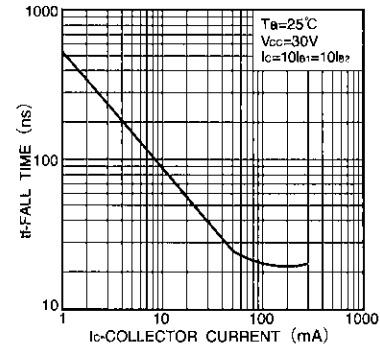


Fig.14 Fall time vs. collector current

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