

NPN small signal transistor

MMSTA13

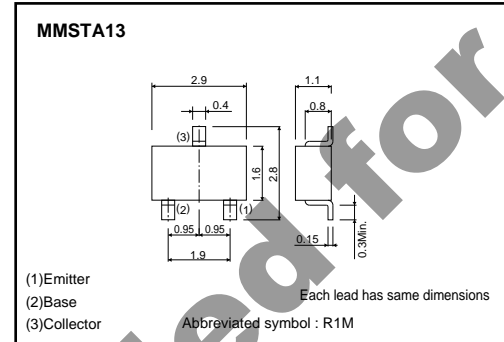
●Features

(1) High Current Gain.

●Packaging specifications

| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | T146 |
| | Basic ordering unit (pieces) | 3000 |
| MMSTA13 | | ○ |

●Dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-----------|------------|------|
| Collector-base voltage | V_{CB0} | 30 | V |
| Collector-emitter voltage | V_{CES} | 30 | V |
| Emitter-base voltage | V_{EBO} | 10 | V |
| Collector current | I_C | 0.3 | A |
| Collector power dissipation | P_C | 0.2 | W |
| | | 0.35 | W * |
| Junction temperature | T_J | 150 | °C |
| Storage temperature | T_{stg} | -55 to 125 | °C |

* Mounted on a 7×5×0.6 mm CERAMIC SUBSTRATE

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|-------|------|------|---------|--|
| Collector-emitter breakdown voltage | BV_{CES} | 30 | — | — | V | $I_C = 100\mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | 30 | — | — | V | $I_C = 10\mu A$ |
| Emitter-base breakdown voltage | BV_{EBO} | 10 | — | — | V | $I_E = 10\mu A$ |
| Collector-base cutoff current | I_{CBO} | — | — | 0.1 | μA | $V_{CB} = 30V$ |
| Emitter-base cutoff current | I_{CEO} | — | — | 0.1 | μA | $V_{EB} = 10V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | — | 1.5 | V | $I_C/I_E = 100mA/100\mu A$ |
| Base-emitter voltage | $V_{BE(on)}$ | — | — | 2.0 | V | $V_{CE} = 5V, I_C = 100mA$ * |
| DC current transfer ratio | h_{FE} | 5000 | — | — | — | $V_{CE} = 5V, I_C = 10mA$ |
| | | 10000 | — | — | — | $V_{CE} = 5V, I_C = 100mA$ * |
| Transition frequency | f_T | 125 | — | — | MHz | $V_{CE} = 5V, I_E = -10mA, f = 100MHz$ |
| Collector output capacitance | C_{ob} | — | 5.4 | — | pF | $V_{CB} = 10V, f = 100kHz, I_E = 0$ |

* Pulsed

●Electrical characteristics curves

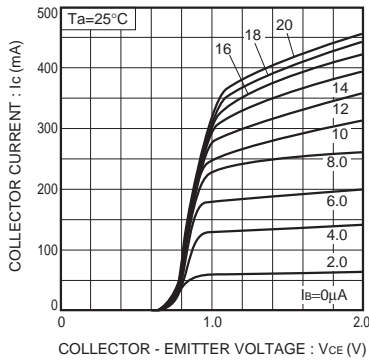


Fig.1 Typical output characteristics (I)

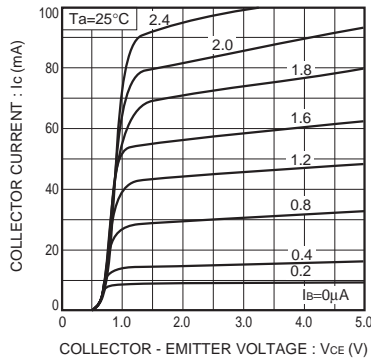


Fig.2 Typical output characteristics (II)

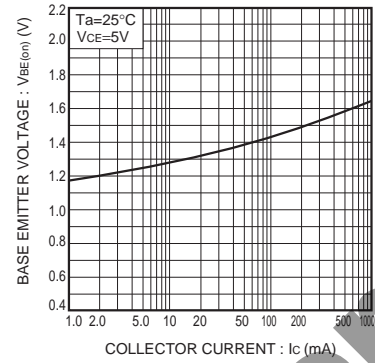


Fig.3 Base emitter 'ON' voltage vs. collector current

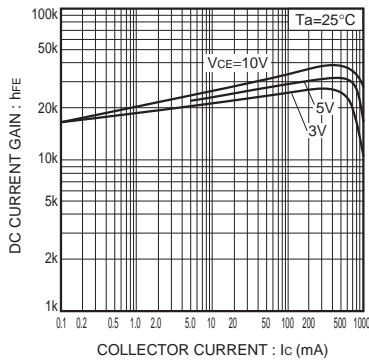


Fig.4 DC current gain vs. collector current (I)

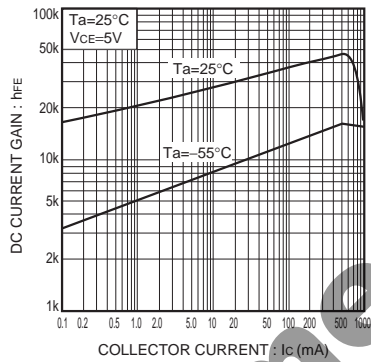


Fig.5 DC current gain vs. collector current (II)

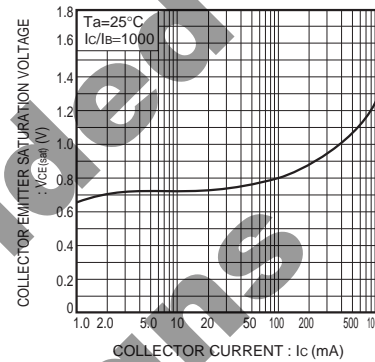


Fig.6 Collector emitter saturation voltage vs. collector current

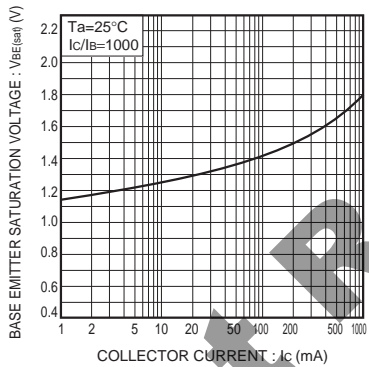


Fig.7 Base emitter saturation voltage vs. collector current

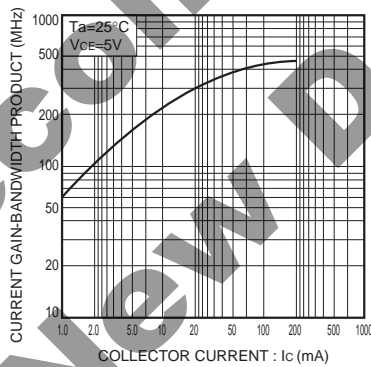


Fig.8 Current gain-bandwidth product vs. collector current

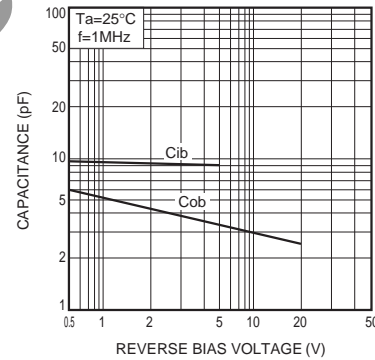


Fig.9 Capacitance vs. reverse bias voltage

Notes

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