

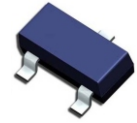
# General Purpose Transistor



SMD Diodes Specialist

## MMST2222A-G (NPN)

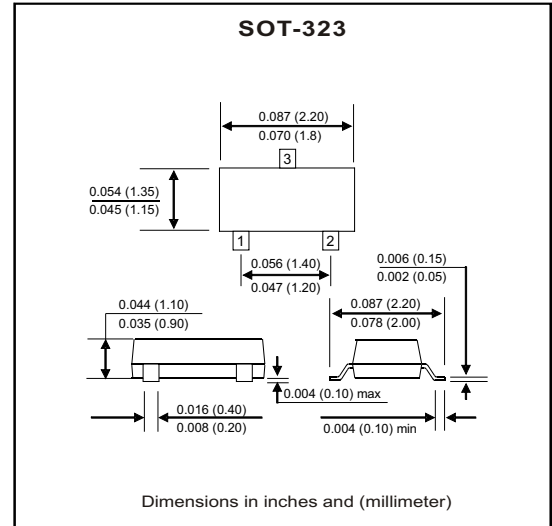
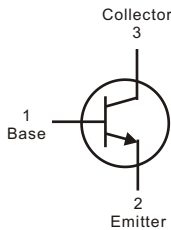
RoHS Device



### Features

- Power dissipation  
 $P_{CM} : 0.2W (T_A=25^{\circ}C)$
- Collector current  
 $I_{CM} : 0.6A$
- Collector-base voltage  
 $V_{(BR)CBO} : 75V$
- Operating and storage junction temperature range  
 $T_J, T_{STG} : -55^{\circ}C \text{ to } +150^{\circ}C$

### Marking: K3P



### Electrical Characteristics (at $T_A=25^{\circ}C$ unless otherwise noted)

| Parameter                            | Conditions   | Symbol        | Min | Max | Unit    |
|--------------------------------------|--|---------------|-----|-----|---------|
| Collector-Base breakdown voltage     | $I_C = 10\mu A, I_E = 0$   | $V_{(BR)CBO}$ | 75  |     | V       |
| Collector-Emitter breakdown voltage  | $I_C = 10mA, I_B = 0$  | $V_{(BR)CEO}$ | 40  |     | V       |
| Emitter-Base breakdown voltage       | $I_E = 10\mu A, I_C = 0$   | $V_{(BR)EBO}$ | 6   |     | V       |
| Collector cut-off current            | $V_{CB} = 70V, I_E = 0$  | $I_{CBO}$     |     | 0.1 | $\mu A$ |
| Collector cut-off current            | $V_{CE} = 35V, I_B = 0$  | $I_{CEO}$     |     | 0.1 | $\mu A$ |
| Emitter cut-off current              | $V_{EB} = 3V, I_C = 0$   | $I_{EBO}$     |     | 0.1 | $\mu A$ |
| DC current gain                      | $V_{CE} = 10V, I_C = 150mA$  | $h_{FE(1)}$   | 100 | 300 |         |
|                                      | $V_{CE} = 10V, I_C = 1mA$  | $h_{FE(2)}$   | 50  |     |         |
| Collector-Emitter saturation voltage | $I_C = 500mA, I_B = 50mA$  | $V_{CE(sat)}$ |     | 0.6 | V       |
| Base-Emitter saturation voltage      | $I_C = 500mA, I_B = 50mA$  | $V_{BE(sat)}$ |     | 1.2 | V       |
| Transition frequency                 | $V_{CE} = 20V, I_C = 20mA$<br>$f = 100MHz$                         | $f_T$         | 300 |     | MHz     |
| Output capacitance                   | $V_{CB} = 10V, I_E = 0$<br>$f = 1MHz$                              | $C_{ob}$      |     | 8   | pF      |
| Delay time                           | $V_{CC} = 30V, I_C = 150mA$<br>$V_{BE(off)} = 0.5V, I_{B1} = 15mA$ | $t_d$         |     | 10  | nS      |
| Rise time                            |  | $t_r$         |     | 25  | nS      |
| Storage time                         | $V_{CC} = 30V, I_C = 150mA$<br>$I_{B1} = I_{B2} = 15mA$            | $t_s$         |     | 225 | nS      |
| Fall time                            |  | $t_f$         |     | 60  | nS      |

## RATING AND CHARACTERISTIC CURVES (MMST2222A-G)

Fig.1 Grounded Emitter Output Characteristics

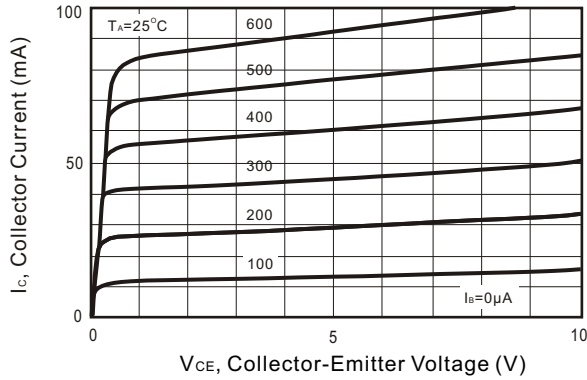


Fig.2 Collector-Emitter Saturation Voltage vs. Collector Current

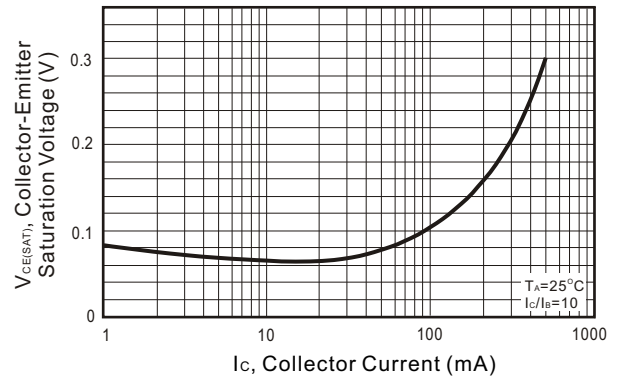


Fig.3 DC Current Gain vs. Collector Current

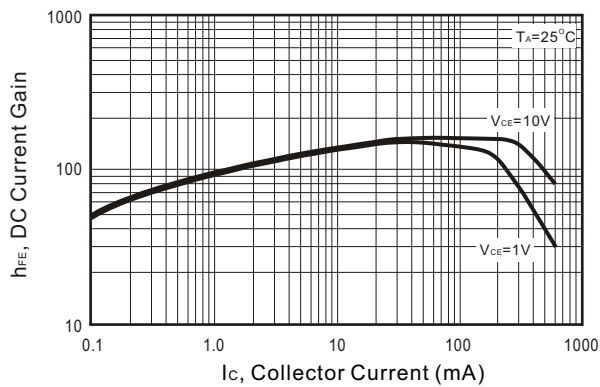


Fig.4 DC Current Gain vs. Collector Current

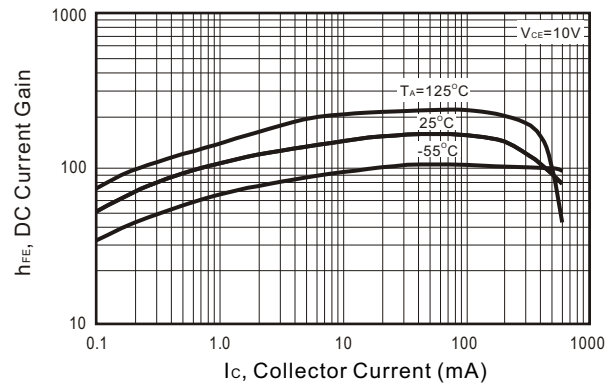


Fig.5 AC Current gain vs. Collector Current

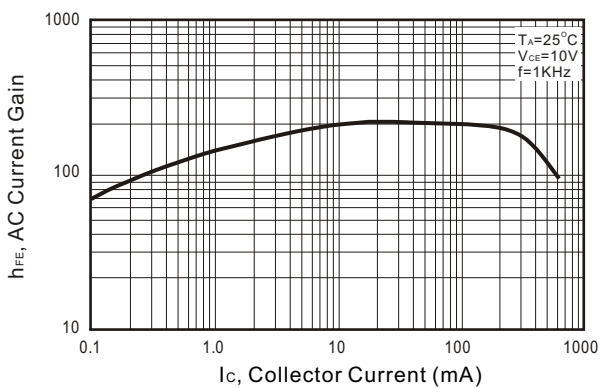
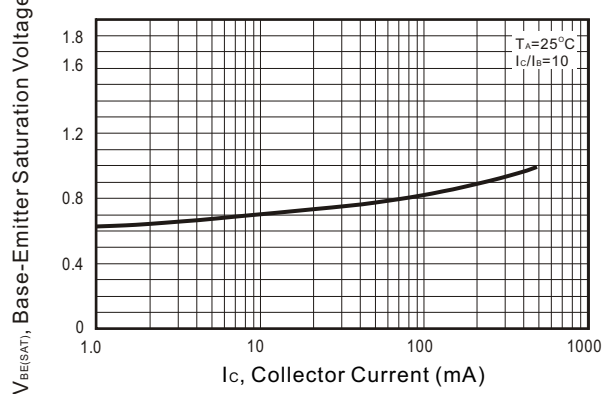


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current



## RATING AND CHARACTERISTIC CURVES (MMST2222A-G)

Fig.7 Grounded-Emitter Propagation Characteristics

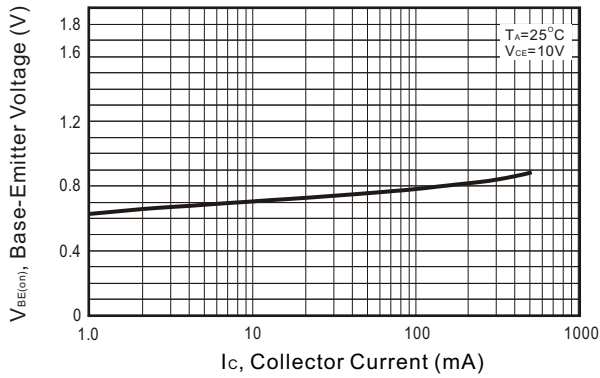


Fig.8 Turn-on time vs. Collector Current

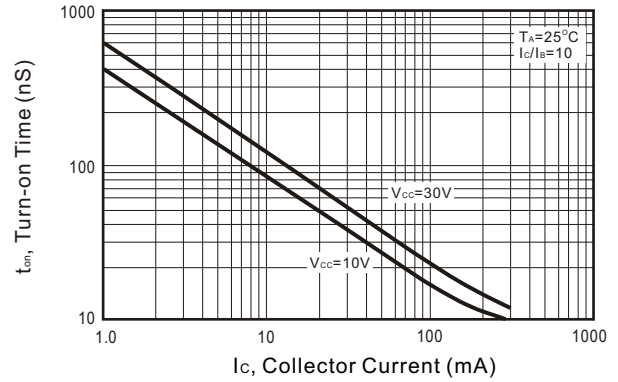


Fig.9 Rise Time vs. Collector Current

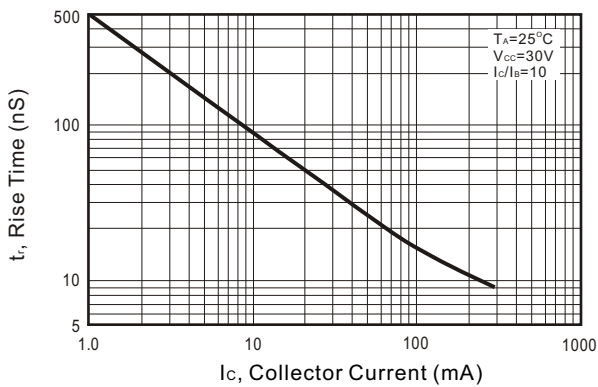


Fig.10 Storage Time vs. Collector Current

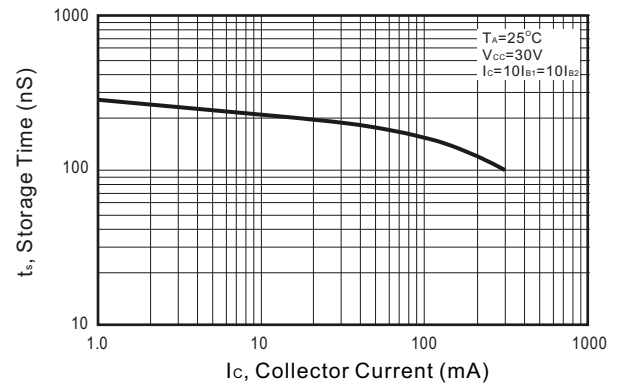


Fig.11 Fall Time vs. Collector Current

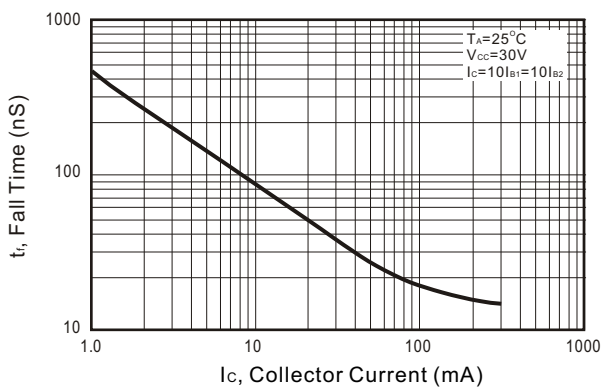
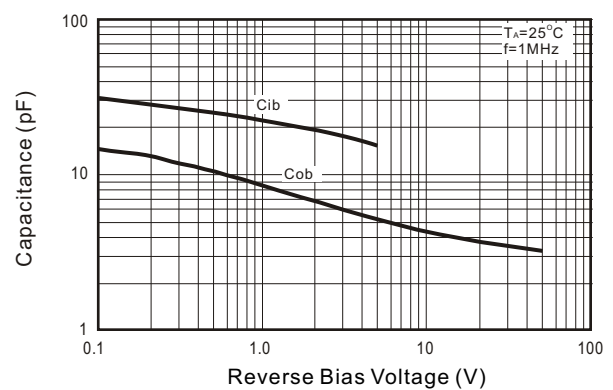


Fig.12 Input/Output Capacitance vs. Voltage



## RATING AND CHARACTERISTIC CURVES (MMST2222A-G)

Fig.13 Gain Bandwidth Product

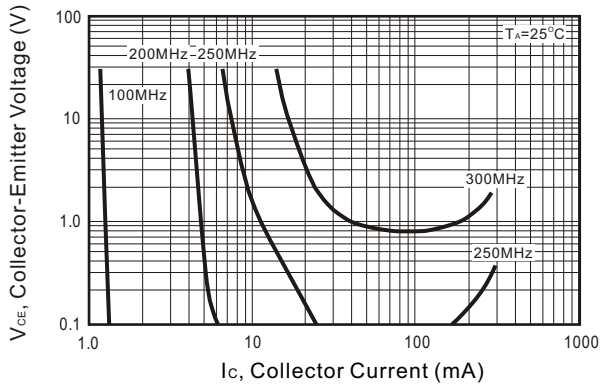


Fig.14 Gain Bandwidth product vs. Collector Current

