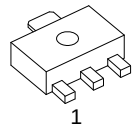
# MPSA44A

*NPN SILICON TRANSISTOR*

## HIGH VOLTAGE TRANSISTOR




SOT-89

### ■ FEATURES

* Collector-Emitter Voltage: $V_{CEO}$=400V
* Collector Current up to 300mA

### ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| MPSA44AL-AB3-R | MPSA44AG-AB3-R | SOT-89 | B | C | E | Tape Reel |

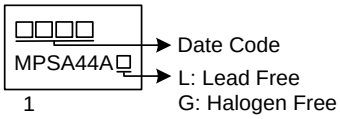
Note: Pin Assignment: B: Base C: Collector E: Emitter

MPSA44AG-AB3-R

(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) AB3: SOT-89
(3) G: Halogen Free and Lead Free, L: Lead Free

### ■ MARKING



## ■ ABSOLUTE MAXIMUM RATING

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 500 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 400 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 6 | V |
| Collector Current | $I_C$ | 300 | mA |
| Collector Current (Peak) | $I_{CM}$ | 1000 | mA |
| Collector Dissipation | $P_C$ | 500 | mW |
| Junction Temperature | $T_J$ | +125 | °C |
| Operating Temperature | $T_{OPR}$ | -20 ~ +85 | °C |
| Storage Temperature | $T_{STG}$ | -40 ~ +150 | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

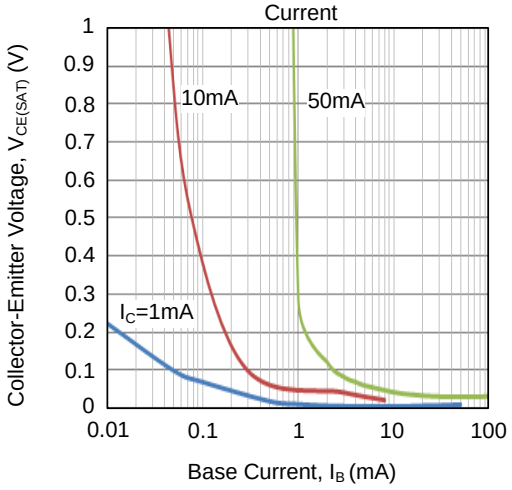
## ■ ELECTRICAL CHARACTERISTICS ($T_J$=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=100μA, $I_E$=0 | 500 | | | V |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=1mA, $I_B$=0 | 400 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=100μA, $I_C$=0 | 6 | | | V |
| Collector-Base Cutoff Current | $I_{CBO}$ | $V_{CB}$=400V, $I_E$=0 | | | 0.1 | μA |
| Collector Cutoff Current | $I_{CES}$ | $V_{CE}$=400V, $I_B$=0 | | | 0.5 | μA |
| Emitter-Base Cutoff Current | $I_{EBO}$ | $V_{EB}$=4V, $I_C$=0 | | | 0.1 | μA |
| **ON CHARACTERISTICS** | | | | | | |
| DC Current Gain (Note) | $h_{FE}$ | $V_{CE}$=10V, $I_C$=1mA | 25 | | 240 | |
| | | $V_{CE}$=10V, $I_C$=10mA | 25 | | 240 | |
| | | $V_{CE}$=10V, $I_C$=50mA | 45 | | 240 | |
| | | $V_{CE}$=10V, $I_C$=100mA | 40 | | 240 | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C$=1mA, $I_B$=0.1mA | | | 0.4 | V |
| | | $I_C$=10mA, $I_B$=1mA | | | 0.5 | |
| | | $I_C$=50mA, $I_B$=5mA | | | 0.75 | |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C$=10mA, $I_B$=1mA | | | 0.75 | V |
| **SMALL-SIGNAL CHARACTERISTICS** | | | | | | |
| Current Gain Bandwidth Product | $f_T$ | $V_{CE}$=20V,$I_C$=10mA, f=100MHz | 50 | | | MHz |
| Output Capacitance | $C_{OB}$ | $V_{CB}$=20V, $I_E$=0, f=1MHz | | | 7 | pF |

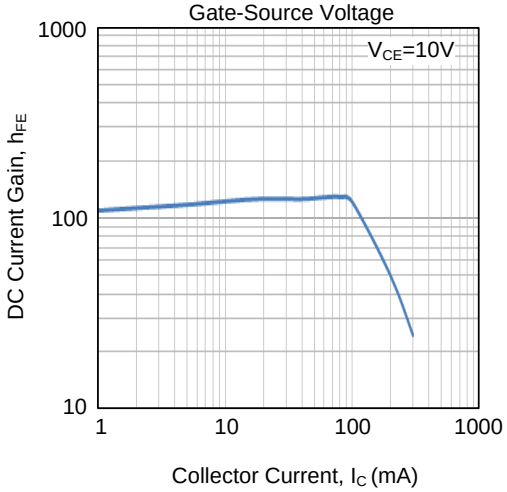
Note: Pulse test: $P_W$ < 300μs, Duty Cycle < 2%.

## ■ TYPICAL CHARACTERISTICS

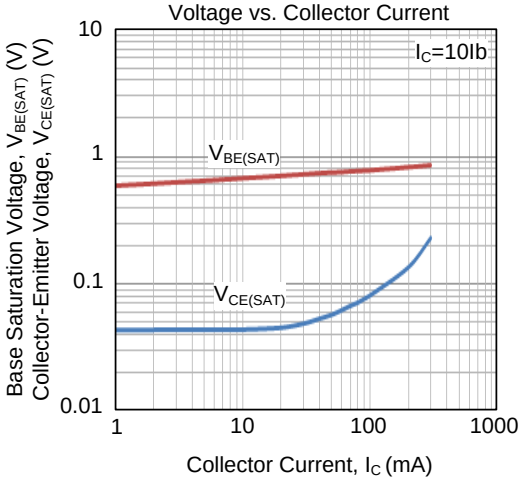
Collector-Emitter Voltage vs. Base Current



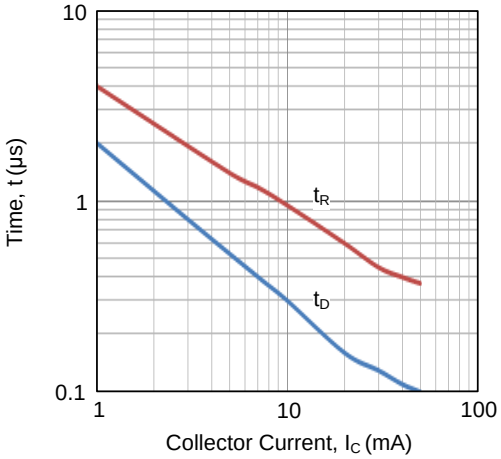

Drain-Source On-Resistance vs. Gate-Source Voltage



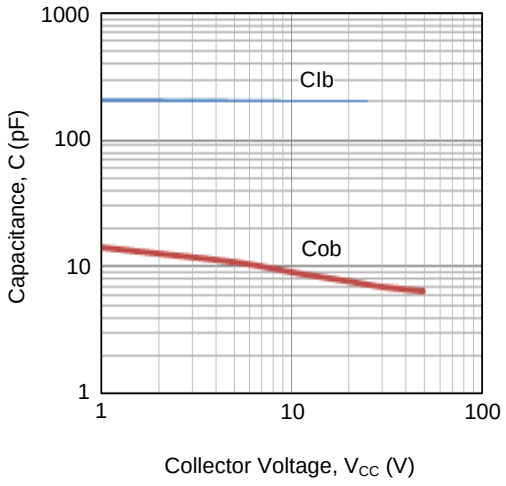

Collector and Base Saturation Voltage vs. Collector Current



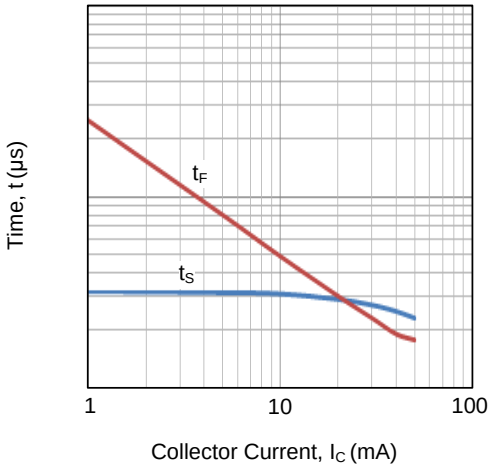

Turn-on Switching Times




Capacitance Characteristics




Turn-off Switching Times



## ■ TYPICAL CHARACTERISTICS (Cont.)