

HIGH VOLTAGE APPLICATION.  
TELEPHONE APPLICATION.

### FEATURES

- Complementary to MPSA92/93.

### MAXIMUM RATING (Ta=25°C)

| CHARACTERISTIC              |        | SYMBOL    | RATING    | UNIT |
|-----------------------------|--------|-----------|-----------|------|
| Collector-Base Voltage      | MPSA42 | $V_{CBO}$ | 300       | V    |
|                             | MPSA43 |           | 200       |      |
| Collector-Emitter Voltage   | MPSA42 | $V_{CEO}$ | 300       | V    |
|                             | MPSA43 |           | 200       |      |
| Emitter-Base Voltage        |        | $V_{EBO}$ | 6.0       | V    |
| Collector Current           |        | $I_C$     | 500       | mA   |
| Emitter Current             |        | $I_E$     | -500      | mA   |
| Collector Power Dissipation |        | $P_C$     | 625       | mW   |
| Junction Temperature        |        | $T_j$     | 150       | °C   |
| Storage Temperature Range   |        | $T_{stg}$ | -55 ~ 150 | °C   |



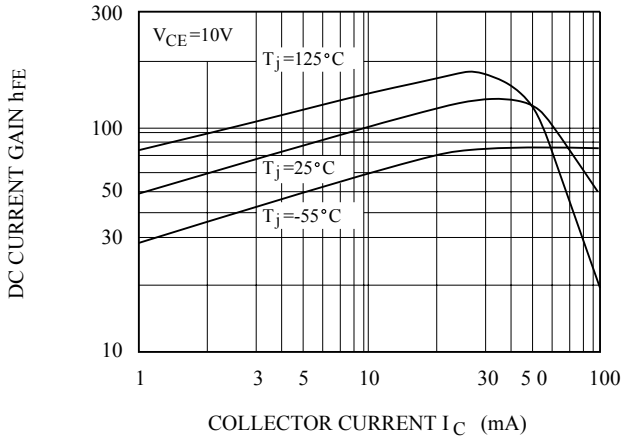
### ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTIC                       |            | SYMBOL          | TEST CONDITION                   | MIN. | TYP. | MAX. | UNIT    |
|--------------------------------------|------------|-----------------|----------------------------------|------|------|------|---------|
| Collector-Base Breakdown Voltage     | MPSA42     | $V_{(BR)CBO}$   | $I_C=100\mu A, I_E=0$            | 300  | -    | -    | V       |
|                                      | MPSA43     |                 |                                  | 200  | -    | -    |         |
| Collector-Emitter Breakdown Voltage  | MPSA42     | $V_{(BR)CEO}$   | $I_C=1.0mA, I_B=0$               | 300  | -    | -    | V       |
|                                      | MPSA43     |                 |                                  | 200  | -    | -    |         |
| Collector Cut-off Current            | MPSA42     | $I_{CBO}$       | $V_{CB}=200V, I_E=0$             | -    | -    | 0.1  | $\mu A$ |
|                                      | MPSA43     |                 | $V_{CB}=160V, I_E=0$             | -    | -    | 0.1  |         |
| Emitter Cut-off Current              | MPSA42     | $I_{EBO}$       | $V_{EB}=6V, I_C=0$               | -    | -    | 0.1  | $\mu A$ |
|                                      | MPSA43     |                 | $V_{EB}=4V, I_C=0$               | -    | -    | 0.1  |         |
| DC Current Gain                      | * $h_{FE}$ |                 | $I_C=1.0mA, V_{CE}=10V$          | 40   | -    | -    |         |
|                                      |            |                 | $I_C=10mA, V_{CE}=10V$           | 40   | -    | -    |         |
|                                      |            |                 | $I_C=30mA, V_{CE}=10V$           | 40   | -    | -    |         |
| Collector-Emitter Saturation Voltage |            | * $V_{CE(sat)}$ | $I_C=20mA, I_B=2.0mA$            | -    | -    | 0.5  | V       |
| Base-Emitter Saturation Voltage      |            | * $V_{BE(sat)}$ | $I_C=20mA, I_B=2.0mA$            | -    | -    | 0.9  | V       |
| Transition Frequency                 |            | $f_T$           | $V_{CE}=20V, I_C=10mA, f=100MHz$ | 50   | -    | -    | MHz     |
| Collector Output Capacitance         | MPSA42     | $C_{ob}$        | $V_{CB}=20V, I_E=0, f=1MHz$      | -    | -    | 3.0  | pF      |
|                                      | MPSA43     |                 |                                  | -    | -    | 4.0  |         |

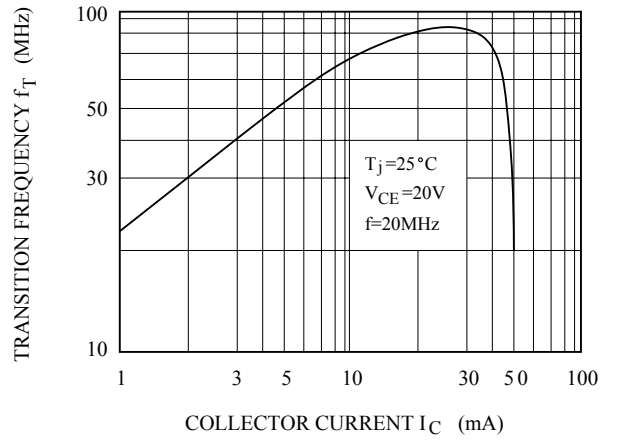
\*Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

# MPSA42/43

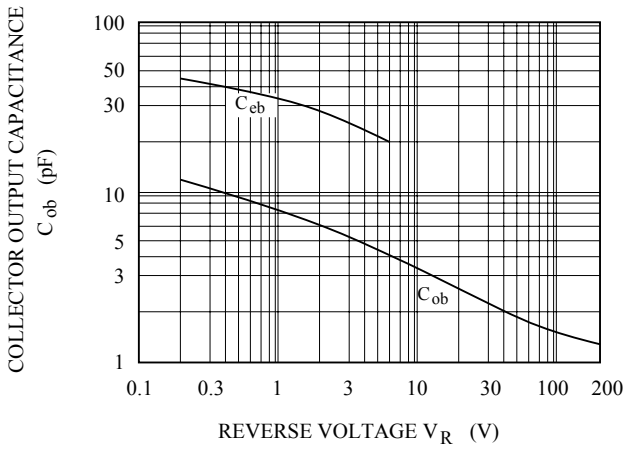
$h_{FE} - I_C$



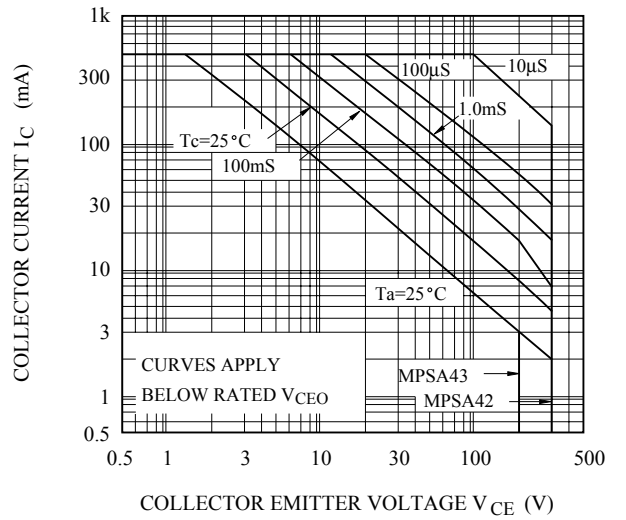
$f_T - I_C$



$C_{ob} - V_R$



$I_C - V_{CE}$



$V_{BE(sat)}, V_{CE(sat)} - I_C$

