

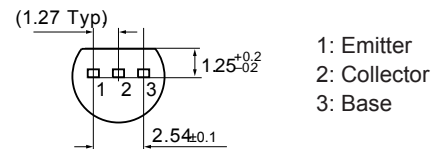
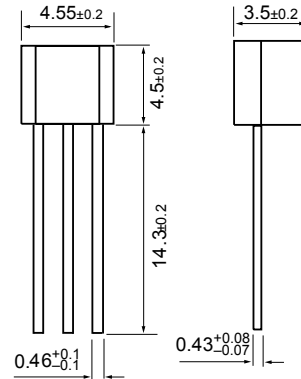
RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

## Features

\* Power Dissipation:  
 $P_{CM}$ : 625 mW ( $T_{amb}=25^{\circ}C$ )

TO-92



1: Emitter  
2: Collector  
3: Base

### MAXIMUM RATINGS\* $T_A=25^{\circ}C$ unless otherwise noted

| Symbol    | Parameter                     | Value   | Units       |
|-----------|-------------------------------|---------|-------------|
| $V_{CBO}$ | Collector-Base Voltage        | -40     | V           |
| $V_{CEO}$ | Collector-Emitter Voltage     | -30     | V           |
| $V_{EBO}$ | Emitter-Base Voltage          | -6      | V           |
| $I_C$     | Collector Current –Continuous | -3      | A           |
| $P_C$     | Collector Dissipation         | 0.625   | W           |
| $T_J$     | Junction Temperature          | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature           | -55~150 | $^{\circ}C$ |

### ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}C$ unless otherwise specified)

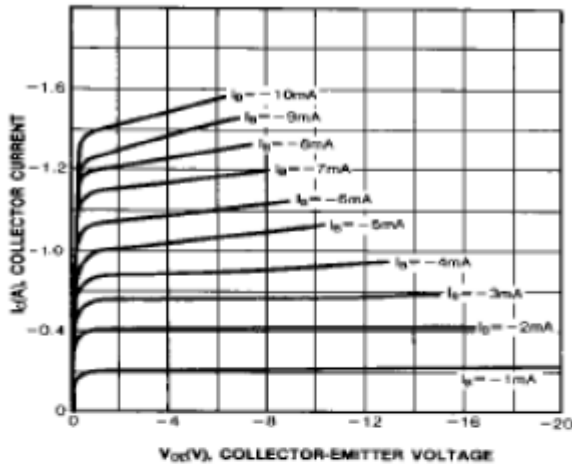
| Parameter                            | Symbol        | Test conditions                           | MIN | TYP | MAX  | UNIT    |
|--------------------------------------|---------------|---|-----|-----|------|---------|
| Collector-base breakdown voltage     | $V(BR)_{CBO}$ | $I_C=-100 \mu A$ , $I_E=0$                | -40 |     |      | V       |
| Collector-emitter breakdown voltage  | $V(BR)_{CEO}$ | $I_C=-10 mA$ , $I_B=0$                    | -30 |     |      | V       |
| Emitter-base breakdown voltage       | $V(BR)_{EBO}$ | $I_E=-100 \mu A$ , $I_C=0$                | -6  |     |      | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=-40 V$ , $I_E=0$                  |     |     | -1   | $\mu A$ |
| Collector cut-off current            | $I_{CEO}$     | $V_{CE}=-30 V$ , $I_B=0$                  |     |     | -10  | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=-6 V$ , $I_C=0$                   |     |     | -1   | $\mu A$ |
| DC current gain                      | $h_{FE(1)}$   | $V_{CE}=-2V$ , $I_C=-1A$                  | 60  |     | 400  |         |
|                                      | $h_{FE(2)}$   | $V_{CE}=-2V$ , $I_C=-100mA$               | 32  |     |      |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-2A$ , $I_B=-0.2A$                   |     |     | -0.5 | V       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=-2A$ , $I_B=-0.2A$                   |     |     | -1.5 | V       |
| Transition frequency                 | $f_T$         | $V_{CE}=-5V$ , $I_C=-0.1A$<br>$f = 10MHz$ | 50  |     |      | MHz     |

### CLASSIFICATION OF $h_{FE(1)}$

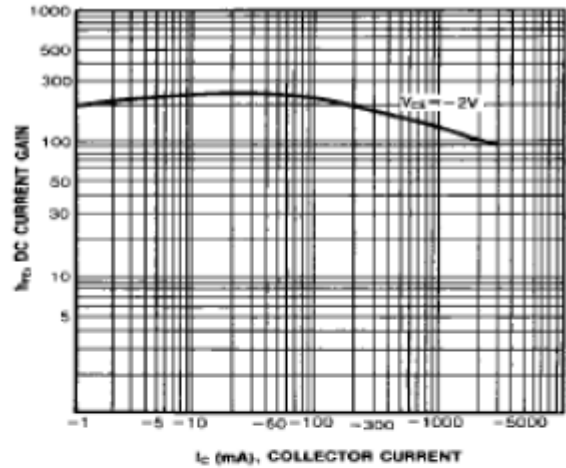
| Rank  | R      | O       | Y       | GR      |
|-------|--------|---------|---------|---------|
| Range | 60-120 | 100-200 | 160-320 | 200-400 |

**Typical Characteristics**

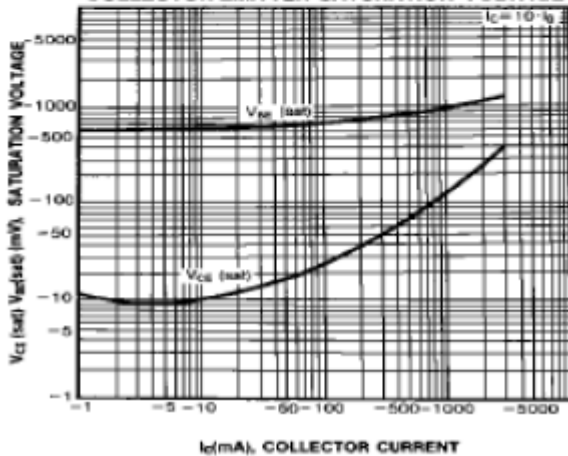
**STATIC CHARACTERISTIC**



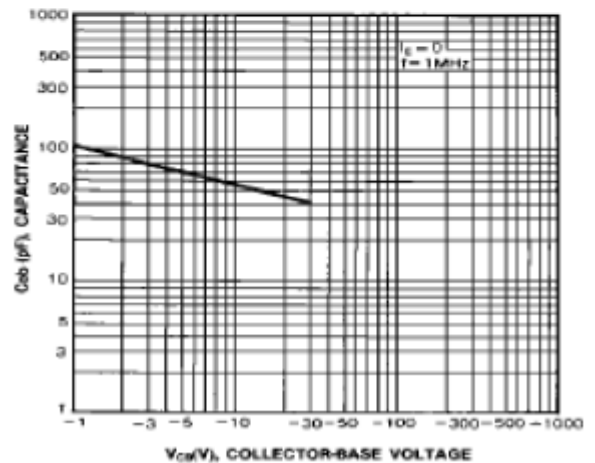
**DC CURRENT GAIN**



**BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE**



**COLLECTOR OUTPUT CAPACITANCE**



**CURRENT GAIN-BANDWIDTH PRODUCT**

