# 2N5643

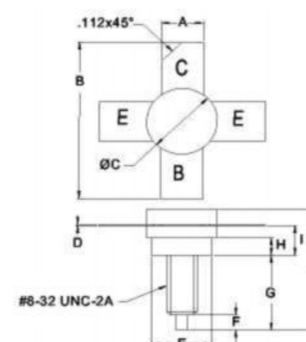
## SILICON BIPOLAR NPN POWER TRANSISTOR

40 W, in the 125 – 175 MHz Range

The silicon bipolar n-p-n transistor is designed for wideband large-signal amplifier stages in the 125 – 175 MHz range.

Features (At 175 MHz):
- Output Power: 40 W
- Power Gain: 7.6 dB Min

### PACKAGE STYLE .380 4L STUD




| DIM | MINIMUM inches / mm | MAXIMUM inches / mm |
|---|---|---|
| A | .220 / 5.59 | .230 / 5.84 |
| B | .980 / 24.89 | |
| C | .370 / 9.40 | .385 / 9.78 |
| D | .004 / 0.10 | .007 / 0.18 |
| E | .320 / 8.13 | .330 / 8.38 |
| F | .100 / 2.54 | .130 / 3.30 |
| G | .450 / 11.43 | .490 / 12.45 |
| H | .090 / 2.29 | .100 / 2.54 |
| I | .155 / 3.94 | .175 / 4.45 |
| J | | .750 / 19.05 |

### Absolute Maximum Ratings

| Parameters | Sym | Value | Unit |
|---|---|---|---|
| Collector–Emitter Voltage | $V_{CEO}$ | 35 | $V_{DC}$ |
| Collector-Base Voltage | $V_{CBO}$ | 65 | $V_{DC}$ |
| Emitter–Base Voltage | $V_{EBO}$ | 4 | $V_{DC}$ |
| Collector Current | $I_C$ | 5 | $A_{DC}$ |
| Operation Junction Temperature | $T_j$ | -65 ÷ +200 | ºC |
| Storage Temperature Range | $T_{STG}$ | -65 ÷ +150 | ºC |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 2.9 | °C/W |
| Total Power Dissipation, $T_C$=25ºC | $P_D$ | 60 | W |

## Parameters

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Collector–Emitter Breakdown Voltage ($I_C$ = 200 mA, $V_{BE}$ =0 V) | $V_{(BR)CEO}$ | 35 | — | — | $V_{DC}$ |
| Collector–Emitter Breakdown Voltage ($I_C$ = 200 mA) | $V_{(BR)CER}$ | 65 | — | — | $V_{DC}$ |
| Emitter–Base Breakdown Voltage ($I_E$ = 10 mA, $I_C$ = 0 A) | $V_{(BR)EBO}$ | 4 | — | — | $V_{DC}$ |
| Collector–Base Leakage Current ($V_{CB}$ = 30 V) | $I_{CBO}$ | — | — | 1 | $mA_{DC}$ |
| DC Current Gain ($V_{CE}$ = 5 V, $I_C$ = 500 mA) | $h_{FE}$ | 5 | — | 100 | |
| Output Capacitance ($V_{CB}$ = 30 V, $I_E$ = 0 mA, f = 1 MHz) | $C_{OB}$ | — | — | 65 | pF |
| Power Gain ($V_{CE}$ = 28 V, $P_{OUT}$ = 40 W, f = 175 MHz) | Gp | 7.6 | — | — | dB |
| Drain Efficiency ($V_{CE}$ = 28 V, $I_C$ = 200 mA, f = 100 MHz) | $\eta_C$ | — | 60 | — | % |

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*Specification is subject to change without notice*