



BDY57 – BDY58

NPN SILICON TRANSISTORS, DIFFUSED MESA

LF Large Signal Power Amplification
High Current Fast Switching

ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | | Value | Unit |
|-----------|---------------------------|--------------------|-------------|------------------|
| V_{CEO} | Collector-Emitter Voltage | BDY57 | 80 | V |
| | | BDY58 | 125 | |
| V_{CBO} | Collector-Base Voltage | BDY57 | 120 | V |
| | | BDY58 | 160 | |
| V_{EBO} | Emitter-Base Voltage | BDY57 | 10 | V |
| | | BDY58 | | |
| I_C | Collector Current | BDY57 | 25 | A |
| | | BDY58 | | |
| I_B | Base Current | BDY57 | 6 | A |
| | | BDY58 | | |
| P_{TOT} | Power Dissipation | @ $T_C = 25^\circ$ | 175 | Watts |
| | | | | |
| T_J | Junction Temperature | BDY57 | -65 to +200 | $^\circ\text{C}$ |
| | | | | |
| T_S | Storage Temperature | | | |

THERMAL CHARACTERISTICS

| Symbol | Ratings | | Value | Unit |
|-------------|--------------------------------------|-------|-------|--------------------|
| R_{thJ-C} | Thermal Resistance, Junction to Case | BDY57 | 1 | $^\circ\text{C/W}$ |
| | | BDY58 | | |

BDY57 – BDY58

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol | Ratings | Test Condition(s) | Min | Typ | Mx | Unit | |
|---------------|---|---|-------|------|------|------|---------------|
| $V_{CE(SUS)}$ | Collector-Emitter Breakdown Voltage (*) | $I_C=100\text{ mA}, I_B=0$ | BDY57 | 80 | - | - | V |
| | | | BDY58 | 125 | - | - | |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $I_C=10\text{ A}, I_B=1.0\text{ A}$ | - | 0.5 | 1.4 | V | |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage (*) | $I_C=5.0\text{ mA}, I_E=0$ | BDY57 | 120 | - | - | V |
| | | | BDY58 | 160 | - | - | |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage (*) | $I_E=5.0\text{ A}, I_C=0$ | - | 0.5 | 1.4 | V | |
| I_{CBO} | Collector-Base Cutoff Current | $V_{CB}=120\text{ V}$ $I_E=0\text{ V}$ | BDY57 | - | 0.5 | 1.0 | mA |
| | | | BDY58 | - | 0.5 | 0.5 | |
| I_{CER} | Collector-Emitter Cutoff Current | $V_{CE}=80\text{ V}$ $R_{BE}=10\ \Omega$ $T_{CASE}=100^\circ\text{C}$ | - | - | 10 | mA | |
| I_{EBO} | Emitter-Base Cutoff Current | $V_{EB}=10\text{ V}$ $I_C=0\text{ V}$ | - | 0.25 | 0.5 | mA | |
| h_{21E} | Static Forward Current transfer ratio (*) | $V_{CE}=4\text{ V}, I_C=10\text{ A}$ | BDY57 | 20 | - | 60 | V |
| | | $V_{CE}=4\text{ V}, I_C=20\text{ A}$ | BDY57 | - | 15 | - | |
| | | $V_{CE}=4\text{ V}, I_C=10\text{ A}, T_{CASE}=-30^\circ\text{C}$ | BDY57 | 10 | - | - | |
| f_T | Transition Frequency | $V_{CE}=15\text{ V}, I_C=1.0\text{ A}, f=10\text{ MHz}$ | BDY57 | 10 | 30 | - | MHz |
| $t_d + t_r$ | Turn-on time | $I_C=15\text{ A}, I_B=1.5\text{ A}$ | BDY57 | - | 0.25 | 1 | μs |
| | | | BDY58 | | | | |

