# MOSPEC

## DARLINGTON COPLEMENTARY SILICON POWER TRANSISTORS

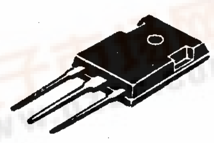
...designed for general-purpose amplifier and low speed switching applications

FEATURES:

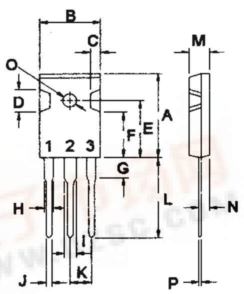
* Collector-Emitter Sustaining Voltage-
  $V_{CEO(SUS)}$ = 60 V (Min) - BDV66,BDV67
  = 80 V (Min) - BDV66A,BDV67A
  = 100 V (Min) - BDV66B,BDV67B
* Collector-Emitter Saturation Voltage
  $V_{CE(sat)}$ = 2.0 V (Max.) @ $I_C$ = 10A
* Monolithic Construction with Built-in Base-Emitter Shunt Resistor

| PNP | NPN |
|---|---|
| BDV66 | BDV67 |
| BDV66A | BDV67A |
| BDV66B | BDV67B |

16 AMPERE
DARLINGTON
COMPLEMENTARY SILICON
POWER TRANSISTORS
60-100 VOLTS
125 WATTS



TO-247(3P)




PIN 1.BASE
2.COLLECTOR
3.EMITTER

| DIM | MILLIMETERS MIN | MILLIMETERS MAX |
|---|---|---|
| A | 20.63 | 22.38 |
| B | 15.38 | 16.20 |
| C | 1.90 | 2.70 |
| D | 5.10 | 6.10 |
| E | 14.81 | 15.22 |
| F | 11.72 | 12.84 |
| G | 4.20 | 4.50 |
| H | 1.82 | 2.46 |
| I | 2.92 | 3.23 |
| J | 0.89 | 1.53 |
| K | 5.26 | 5.66 |
| L | 18.50 | 21.50 |
| M | 4.68 | 5.36 |
| N | 2.40 | 2.80 |
| O | 3.25 | 3.65 |
| P | 0.55 | 0.70 |

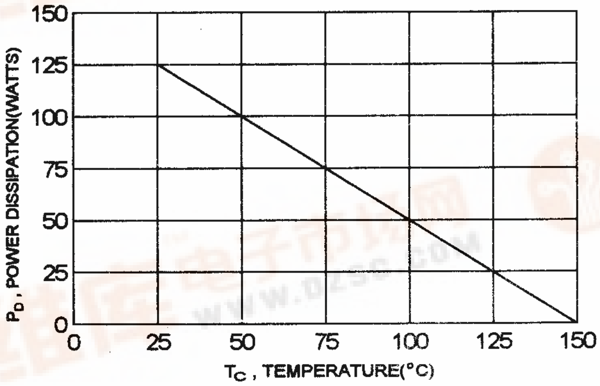
## MAXIMUM RATINGS

| Characteristic | Symbol | BDV66 BDV67 | BDV66A BDV67A | BDV66B BDV67B | Unit |
|---|---|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ | 60 | 80 | 100 | V |
| COllector-Base Voltage | $V_{CBO}$ | 60 | 80 | 100 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5.0 | | | V |
| Collector Current-Continuous<br>-Peak | $I_C$<br>$I_{CM}$ | 16<br>20 | | | A |
| Base Current | $I_B$ | 0.25 | | | A |
| Total Power Dissipation @$T_C$= 25°C<br>Derate above 25°C | $P_D$ | 125<br>1.0 | | | W<br>W/°C |
| Operating and Storage Junction Temperature Range | $T_J$ ,$T_{STG}$ | - 65 to +150 | | | °C |

## THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Thermal Resistance Junction to Case | $R_{\theta jc}$ | 1.0 | °C/W |

FIGURE -1 POWER DERATING



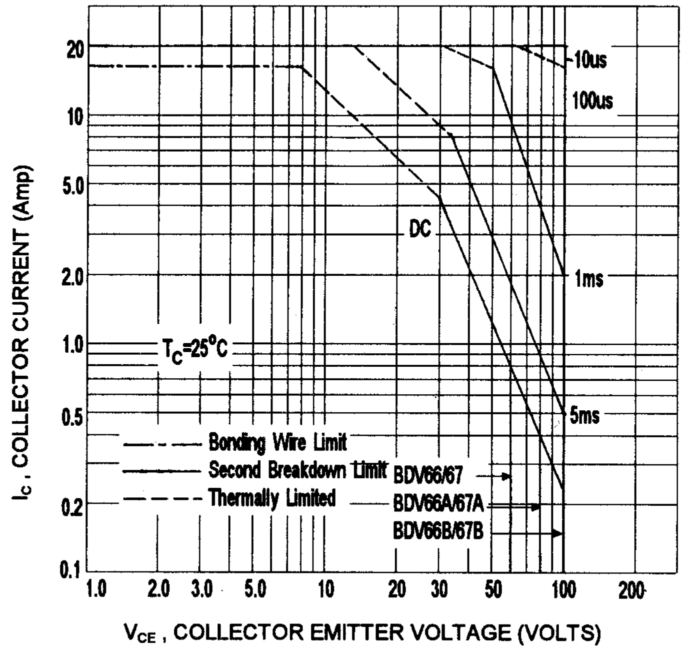
## ELECTRICAL CHARACTERISTICS ( $T_c$ = 25°C unless otherwise noted )

| Characteristic | | Symbol | Min | Max | Unit |
|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | |
| Collector - Emitter Sustaining Voltage (1) ( $I_C$ = 0.1 A, L=25 mH ) | BDV66,BDV67<br>BDV66A,BDV67A<br>BDV66B,BDV67B | $V_{CEO(sus)}$ | 60<br>80<br>100 | | V |
| Collector Cutoff Current<br>( $V_{CE}$ = 30 V, $I_B$ = 0 )<br>( $V_{CE}$ = 40 V, $I_B$ = 0 )<br>( $V_{CE}$ = 50 V, $I_B$ = 0 ) | BDV66,BDV67<br>BDV66A,BDV67A<br>BDV66B,BDV67B | $I_{CEO}$ | | 3.0<br>3.0<br>3.0 | mA |
| Collector Cutoff Current<br>( $V_{CB}$ = 60 V, $I_E$ = 0 )<br>( $V_{CB}$ = 80 V, $I_E$ = 0 )<br>( $V_{CB}$ = 100 V, $I_E$ = 0 ) | BDV66,BDV67<br>BDV66A,BDV67A<br>BDV66B,BDV67B | $I_{CBO}$ | | 0.4<br>0.4<br>0.4 | mA |
| Emitter Cutoff Current<br>( $V_{EB}$ = 5.0 V, $I_C$= 0 ) | | $I_{EBO}$ | | 5.0 | mA |
| **ON CHARACTERISTICS (1)** | | | | | |
| Collector-Emitter Saturation Voltage<br>( $I_C$ = 10 A, $I_B$ = 40 mA ) | | $V_{CE(sat)}$ | | 2.0 | V |
| **DYNAMIC CHARACTERISTICS** | | | | | |
| Small-Signal Current Gain (2)<br>( $I_C$ = 5.0 A, $V_{CE}$ = 3.0 V, f = 1.0 KHz ) | | $f_T$ | 6.0 | | MHz |
| Output Capaitance<br>($V_{CB}$ = 10 V, $I_E$ = 0 , f = 1.0 MHZ ) | | $C_{ob}$ | | 450 | pF |
| **SWITCHING CHARACTERISTICS** | | | | | |
| Turn On Time | $I_C$= 5.0A, $V_{CC}$= 12V )<br>$I_{B1}$=-$I_{B2}$=40mA | $t_{on}$ | 1.0(typ) | | us |
| Off Time | | $t_{off}$ | 3.5(typ) | | us |

(1) Pulse Test: Pulse width = 300 us , Duty Cycle ≦ 2.0%

(2) $f_T = |h_{fe}| \circ f_{test}$

FIG-2 ACTIVE-REGION SAFE OPERATING AREA




There are two limitation on the power handling ability of a transistor:average junction temperature and second breakdown safe operating area curves indicate $I_C$-$V_{CE}$ limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than curves indicate.

The data of FIG-2 is base on $T_{J(PK)}$=150 °C;$T_C$ isvariable depending on conditions.second breakdown pulse limits are valid for duty cycles to 10% provided$T_{J(PK)}$<150°C , At high case temperatures, thermal limita tion will reduce the power that can be handled to values less than the limitations imposed by second breakdown.