

## DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS

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

### FEATURES:

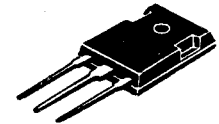
- \* Collector-Emitter Sustaining Voltage-  
 $V_{CE(SUS)}$  = 60 V (Min) - BDV66, BDV67  
 = 80 V (Min) - BDV66A, BDV67A  
 = 100 V (Min) - BDV66B, BDV67B
- \* Collector-Emitter Saturation Voltage  
 $V_{CE(sat)}$  = 2.0 V (Max.) @  $I_C = 10A$
- \* Monolithic Construction with Built-in Base-Emitter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

PNP	NPN
BDV66	BDV67
BDV66A	BDV67A
BDV66B	BDV67B

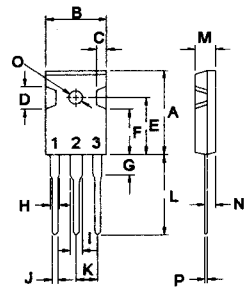
16 AMPERE  
DARLINGTON  
COMPLEMENTARY SILICON  
POWER TRANSISTORS  
60-100 VOLTS  
125 WATTS

### 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 -Peak	$I_C$ $I_{CM}$	16 20			A
Base Current	$I_B$	0.25			A
Total Power Dissipation @ $T_c = 25^\circ C$ Derate above $25^\circ C$	$P_D$	125 1.0			W W/ $^\circ C$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	- 65 to +150			$^\circ C$



TO-247(3P)



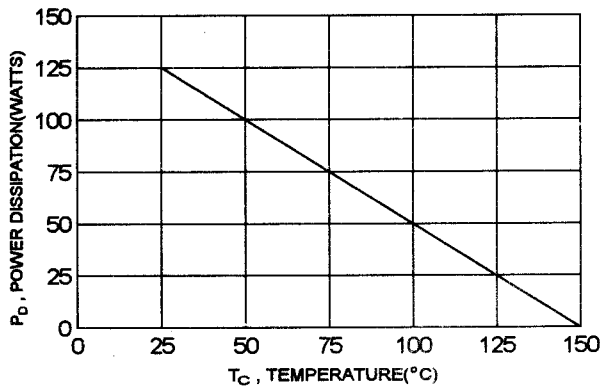
PIN 1.BASE  
2.COLLECTOR  
3.EMITTER

### THERMAL CHARACTERISTICS

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

DIM	MILLIMETERS	
	MIN	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

FIGURE -1 POWER DERATING



**ELECTRICAL CHARACTERISTICS (  $T_c = 25^\circ\text{C}$  unless otherwise noted )**

Characteristic	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector - Emitter Sustaining Voltage (1) ( $I_c = 0.1\text{ A}$ , $L=25\text{ mH}$ )	BDV66,BDV67 BDV66A,BDV67A BDV66B,BDV67B	$V_{CE(sus)}$	60 80 100	V
Collector Cutoff Current ( $V_{CE} = 30\text{ V}$ , $I_B = 0$ ) ( $V_{CE} = 40\text{ V}$ , $I_B = 0$ ) ( $V_{CE} = 50\text{ V}$ , $I_B = 0$ )	BDV66,BDV67 BDV66A,BDV67A BDV66B,BDV67B	$I_{CEO}$	3.0 3.0 3.0	mA
Collector Cutoff Current ( $V_{CB} = 60\text{ V}$ , $I_E = 0$ ) ( $V_{CB} = 80\text{ V}$ , $I_E = 0$ ) ( $V_{CB} = 100\text{ V}$ , $I_E = 0$ )	BDV66,BDV67 BDV66A,BDV67A BDV66B,BDV67B	$I_{CBO}$	0.4 0.4 0.4	mA
Emitter Cutoff Current ( $V_{EB} = 5.0\text{ V}$ , $I_C = 0$ )		$I_{EBO}$	5.0	mA

**ON CHARACTERISTICS (1)**

Collector-Emitter Saturation Voltage ( $I_c = 10\text{ A}$ , $I_B = 40\text{ mA}$ )		$V_{CE(sat)}$	2.0	V
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**DYNAMIC CHARACTERISTICS**

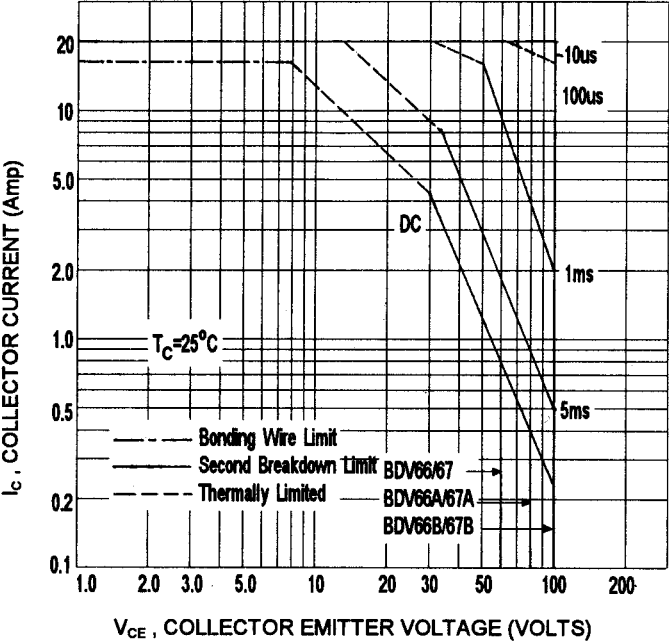
Small-Signal Current Gain (2) ( $I_c = 5.0\text{ A}$ , $V_{CE} = 3.0\text{ V}$ , $f = 1.0\text{ KHz}$ )		$f_T$	6.0	MHz
Output Capacitance ( $V_{CB} = 10\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )		$C_{ob}$	450	pF

**SWITCHING CHARACTERISTICS**

Turn On Time	$I_c = 5.0\text{ A}$ , $V_{CC} = 12\text{ V}$ $I_{B1} = -I_{B2} = 40\text{ mA}$	$t_{on}$	1.0(typ)	us
Off Time		$t_{off}$	3.5(typ)	us

(1) Pulse Test: Pulse width = 300 us , Duty Cycle  $\leq 2.0\%$ (2)  $f_T = |h_{re}| \cdot f_{test}$

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  $T_{J(PK)} = 150^\circ\text{C}$ ;  $T_c$  is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(PK)} < 150^\circ\text{C}$ . At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.