

## SWITCHMODE SERIES NPN SILICON POWER DARLINGTON TRANSISTOR

The BU826 darlington transistors is designed for high-voltage, high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line operated switchmode applications such as:

### FEATURES:

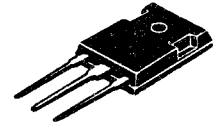
- \*Continuous Collector Current -  $I_C = 6$  A
- \*Switching Regulators
- \*Inverters
- \*Solenoid and Relay Drivers

**NPN  
BU826**

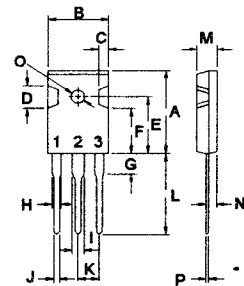
**6 AMPERE  
POWER DARLINGTON  
TRANSISTORS  
375 VOLTS  
125 WATTS**

### MAXIMUM RATINGS

Characteristic	Symbol	BU826	Unit
Collector-Emitter Voltage ( $V_{BE} = 0$ )	$V_{CES}$	800	V
Collector-Emitter Voltage	$V_{CEO}$	375	V
Emitter-Base Voltage	$V_{EBO}$	8	V
Collector Current-Continuous -Peak	$I_C$ $I_{CM}$	6 8	A
Base current	$I_B$	0.5	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	125 1.0	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	- 65 to +150	$^\circ\text{C}$



**TO-247(3P)**



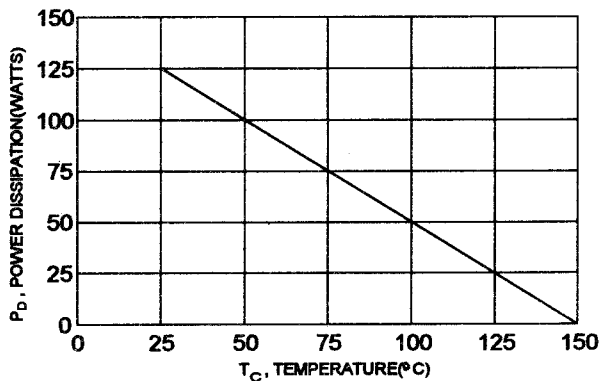
PIN 1.BASE  
2.COLLECTOR  
3.EMITTER

### THERMAL CHARACTERISTICS

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

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 ( $I_c = 100\text{ mA}$ , $I_B = 0$ , $L=25\text{ mH}$ , $V_{\text{clamp}} = \text{Rate } V_{\text{CEO}}$ )	$V_{\text{CEO(sus)}}$	375		V
Collector Cutoff Current ( $V_{\text{CE}} = \text{Rated } V_{\text{CES}}$ , $R_{\text{BE}}=0$ ) ( $V_{\text{CE}} = \text{Rated } V_{\text{CES}}$ , $R_{\text{BE}}=0$ , $T_J=125^\circ\text{C}$ )	$I_{\text{CES}}$		1.0 2.0	mA
Emitter Cutoff Current ( $V_{\text{EB}} = 8.0\text{ V}$ , $I_c = 0$ )	$I_{\text{EBO}}$		150	mA

**ON CHARACTERISTICS (1)**

Collector - Emitter Saturation Voltage ( $I_c = 2.5\text{ A}$ , $I_B = 55\text{ mA}$ ) ( $I_c = 4.0\text{ A}$ , $I_B = 200\text{ mA}$ )	$V_{\text{CE(sat)}}$		2.0 2.5	V
Base - Emitter Saturation Voltage ( $I_c = 2.5\text{ A}$ , $I_B = 55\text{ mA}$ )	$V_{\text{BE(sat)}}$		2.2	V

**SWITCHING CHARACTERISTICS**

Turn-on Time	$V_{\text{CC}} = 250\text{ V}$ , $I_c = 2.5\text{ A}$ $I_{\text{Bon}} = 55\text{ mA}$ , $I_{\text{B(off)}} = -1.0\text{ A}$ $t_p = 20\text{ us}$ , Duty Cycle $\leq 1\%$	$t_d$	1.6	us
Storage Time		$t_s$	3.1	us
Fall Time		$t_f$	1.2	us

(1) Pulse Test: Pulse width = 300 us , Duty Cycle  $\leq 2.0\%$