

## MEDIUM VOLTAGE NPN FAST SWITCHING DARLINGTON TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPES
- NPN DARLINGTON
- LOW BASE-DRIVE REQUIREMENTS
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

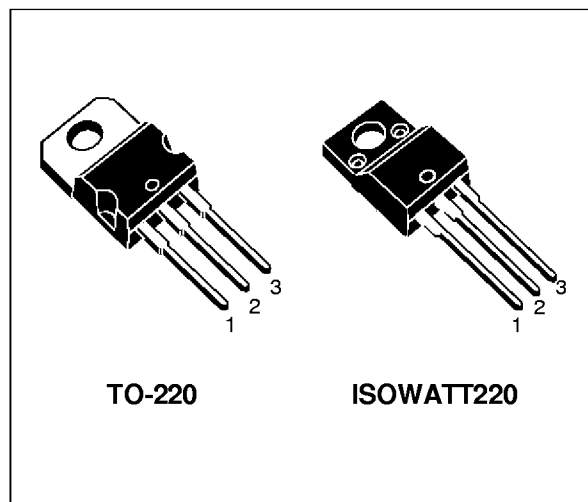
### APPLICATION

- HORIZONTAL DEFLECTION FOR MONOCHROME TVs

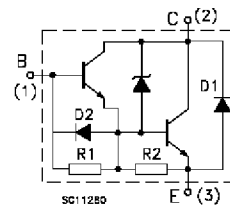
### DESCRIPTION

The BU806, BU807 and BU806FI are silicon epitaxial planar NPN power transistors in Darlington configuration with integrated base-emitter speed-up diode, mounted respectively in TO-220 plastic package and ISOWATT220 fully isolated package.

They can be used in horizontal output stages of 110 °CRT video displays.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BU806 / BU806FI	BU807	
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	400	330	V
$V_{CEV}$	Collector-emitter Voltage ( $V_{BE} = -6V$ )	400	330	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	200	150	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	6		V
$I_C$	Collector Current	8		A
$I_{CM}$	Collector Peak Current	15		A
$I_{DM}$	Damper Diode Peak Forward Current	10		A
$I_B$	Base Current	2		
		<b>TO-220</b>	<b>ISOWATT220</b>	A
$P_{tot}$	Total Power Dissipation at $T_{case} < 25\text{ °C}$	60	30	W
$T_{stg}$	Storage Temperature	-65 to 150		°C
$T_j$	Max Operating Junction Temperature	150		°C

**THERMAL DATA**

			<b>TO220</b>	<b>ISOWATT220</b>	
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	2.08	4.16	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	70		°C/W

**ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

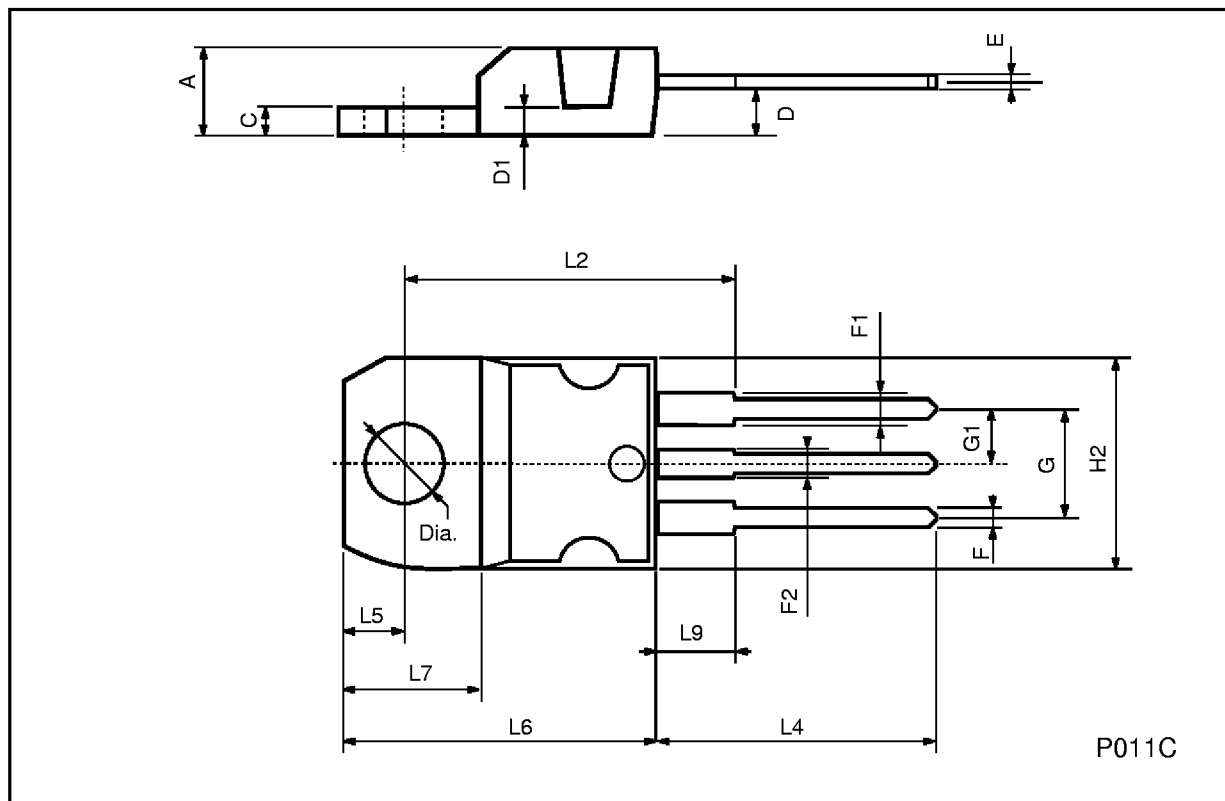
<b>Symbol</b>	<b>Parameter</b>	<b>Test Conditions</b>	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	<b>Unit</b>
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	for <b>BU807</b> V <sub>CE</sub> = 330 V for <b>BU806/FI</b> V <sub>CE</sub> = 400 V			100 100	μA μA
I <sub>CEV</sub>	Collector Cut-off Current (V <sub>BE</sub> = -6V)	for <b>BU807</b> V <sub>CE</sub> = 330 V for <b>BU806/FI</b> V <sub>CE</sub> = 400 V			100 100	μA μA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 6 V			3.5	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 100 mA for <b>BU807</b> for <b>BU806/FI</b>	150 200			V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A I <sub>B</sub> = 50mA			1.5	V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 5A I <sub>B</sub> = 50mA			2.4	V
V <sub>F*</sub>	Damper Diode Forward Voltage	I <sub>F</sub> = 4A			2	V
t <sub>off**</sub>	Turn-off Time	<b>RESISTIVE LOAD</b> I <sub>C</sub> = 5A I <sub>B2</sub> = -500mA I <sub>B1</sub> = 50mA V <sub>CC</sub> = 100V		0.4	1	μs
t <sub>on**</sub>	Turn-on Time			0.35		μs
t <sub>s**</sub>	Storage Time			0.55		μs
t <sub>f</sub>	Fall Time			0.2		μs

\* Pulsed: Pulse duration = 300 μs, duty cycle < 1.5 %

\* See Test Circuit.

**TO-220 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



**ISOWATT220 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.4		4.6	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.4		0.7	0.015		0.027
F	0.75		1	0.030		0.039
F1	1.15		1.7	0.045		0.067
F2	1.15		1.7	0.045		0.067
G	4.95		5.2	0.195		0.204
G1	2.4		2.7	0.094		0.106
H	10		10.4	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	0.385		0.417
L6	15.9		16.4	0.626		0.645
L7	9		9.3	0.354		0.366
Ø	3		3.2	0.118		0.126

