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BU406D Silicon NPN Transistor Power Amp, High Voltage, Switch TO-220 Type Package

Description:

The BU406D is a silicon NPN transistor in a TO-220 type package designed for high-voltage, high-speed horizontal deflection output stages of TVs and CTVs.

Features:

- Collector-Emitter Sustaining Voltage: $V_{CEV} = 330V$ (Min)
- Low saturation Voltage: $V_{CE(sat)} = 1V$ (Max) @ $I_C = 5A$
- Fast Switching Speed: $t_f = 0.75\mu s$ (Max)

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	200V
Collector-Emitter Voltage, V_{CEV}	400V
Collector-Base Voltage, V_{CBO}	400V
Emitter-Base Voltage, V_{EBO}	6V
Collector Current, I_C	
Continuous	7A
Peak	10A
Continuous Base Current, I_B	4A
Total Power Dissipation ($T_C = +25^\circ C$), P_D	60W
Derate Above $25^\circ C$	480mW/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ C$
Thermal Resistance, Junction to Case, R_{thJC}	2.085 $^\circ C/W$

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0$, Note 1	200	-	-	V
Collector Cutoff Current	I_{CEV}	$V_{CE} = 400V, V_{BE} = -1.5V$	-	-	15	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 6V, I_C = 0$	-	-	400	mA

Note 1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 2\text{A}, V_{CE} = 5\text{V}$	-	15	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 650\text{mA}$	-	-	1.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 5\text{A}, I_B = 650\text{mA}$	-	-	1.3	V
Diode Forward Voltage	V_F	$I_F = 5\text{A}$	-	-	1.5	V
Dynamic Characteristics						
Current Gain-Bandwidth Product	f_T	$I_C = 500\text{mA}, V_{CE} = 10\text{V}, f = 1\text{MHz}$	10	-	-	MHz
Switching Characteristics						
Fall Time	t_f	$V_{CC} = 40\text{V}, I_C = 5\text{A}, I_{B\text{end}} = 650\text{mA}$	-	-	0.75	μs

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

