



TO-220 Plastic-Encapsulate Transistors

BUL128D TRANSISTOR (NPN)

FEATURES

- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING
- FLYBACK AND FORWARD SINGLE TRANSISTOR LOW POWER CONVERTERS

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

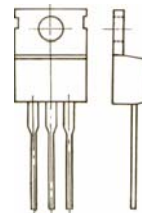
Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current -Continuous	4	A
P_C	Collector Power Dissipation	2	W
$R_{thj-case}$	Thermal Resistance Junction-Case Max	1.78	$^{\circ}\text{C}/\text{W}$
$R_{thj-amb}$	Thermal Resistance Junction-Ambient Max	62.5	$^{\circ}\text{C}/\text{W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature Range	-55-150	$^{\circ}\text{C}$

TO-220

1.BASE

2.COLLECTOR

3.EMITTER



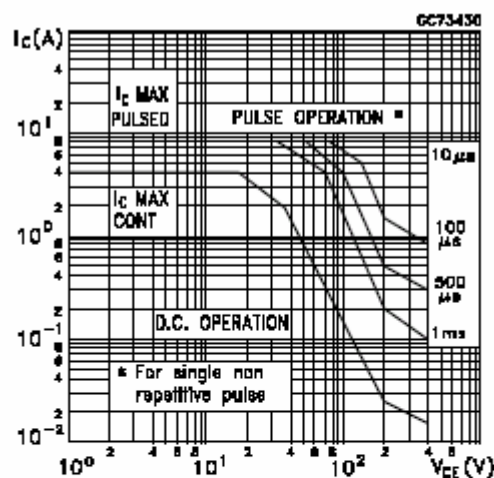
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ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

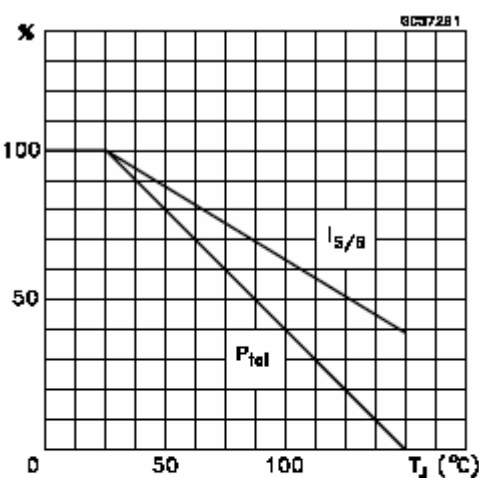
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	700			V
Collector-emitter Sustaining voltage	$V_{CEO(SUS)}$	$I_C = 100\text{mA}, L = 25\text{mH}$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\text{mA}, I_C = 0$	9			V
Collector cut-off current	I_{CBO}	$V_{CE} = 400\text{V}, I_E = 0$			0.1	mA
Collector Cut-off Current	I_{CES}	$V_{BE} = -1.5\text{V}, V_{CE} = 700\text{V}$			0.1	mA
Emitter cut-off current	I_{EBO}	$V_{EB} = 7\text{V}, I_C = 0$			50	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 5\text{V}, I_C = 2\text{A}$	8		40	
	$h_{FE(2)}$	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	10			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.5\text{A}, I_B = 0.1\text{A}$ $I_C = 1\text{A}, I_B = 0.2\text{A}$ $I_C = 2.5\text{A}, I_B = 0.5\text{A}$ $I_C = 4\text{A}, I_B = 1\text{A}$		0.5	0.7 1 1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 0.5\text{A}, I_B = 0.1\text{A}$ $I_C = 1\text{A}, I_B = 0.2\text{A}$ $I_C = 2.5\text{A}, I_B = 0.5\text{A}$			1.1 1.2 1.3	V
Forward Voltage Drop	V_F	$I_F = 2\text{A}$			2.5	V
Fall time	t_f	$V_{CC} = 200\text{V}, I_C = 2\text{A}$ $I_{B1} = -I_{B2} = 0.4\text{A}$		0.1		μs
Storage time	t_s			0.6		μs
Fall time	t_f	$V_{CC} = 250\text{V}, I_C = 2\text{A}$ $I_{B1} = -I_{B2} = 0.4\text{A}$		0.2		μs
Storage time	t_s		2		2.9	μs

Typical Characteristics

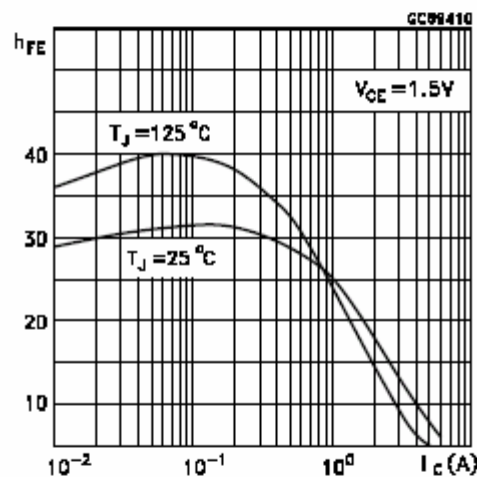
BUL128D



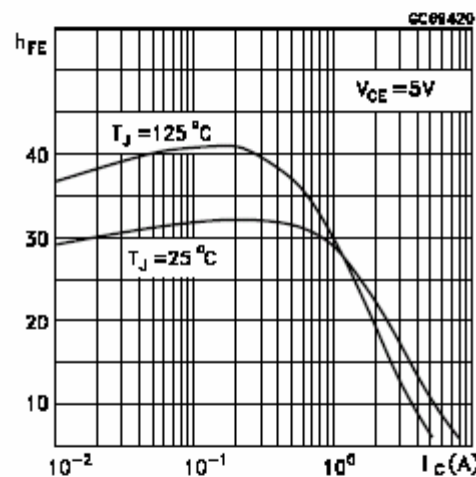
DC Current Gain



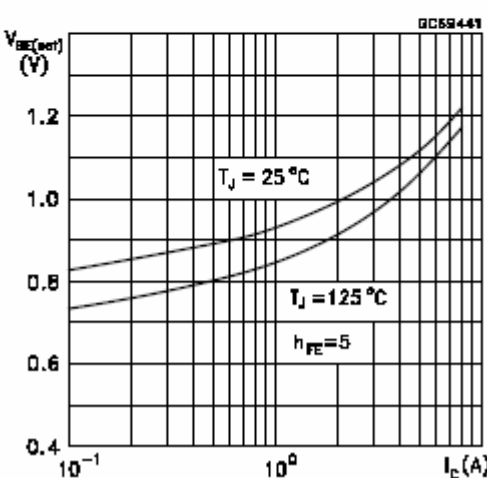
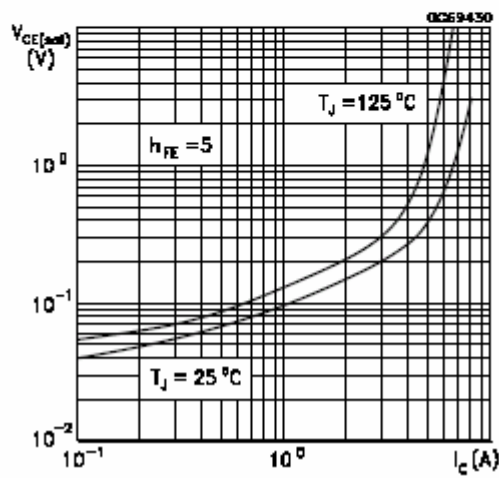
DC Current Gain



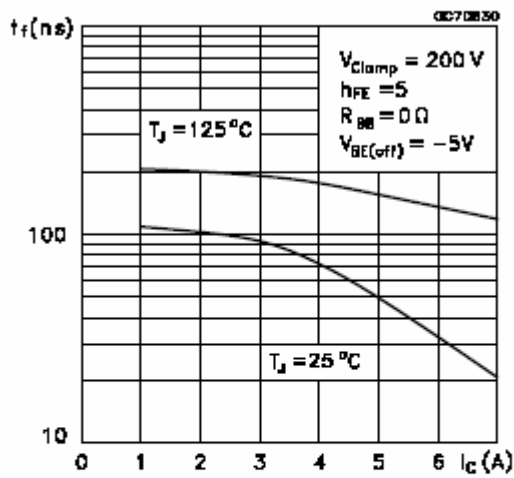
Collector Emitter Saturation Voltage



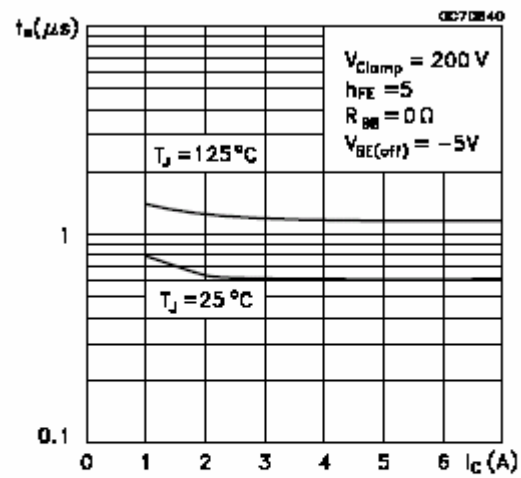
Base Emitter Saturation Voltage



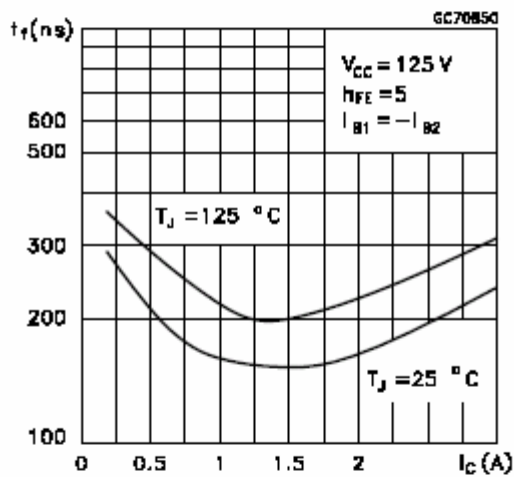
Inductive Fall Time



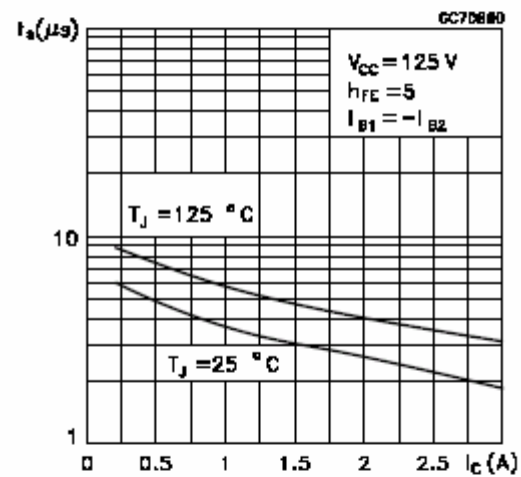
Inductive Storage Time



Resistive Load Fall Time



Resistive Load Storage Time



Reverse Biased SOA

