



13002AG

Preliminary

NPN SILICON TRANSISTOR

HIGH VOLTAGE FAST SWITCHING NPN POWER APPLICATIONS

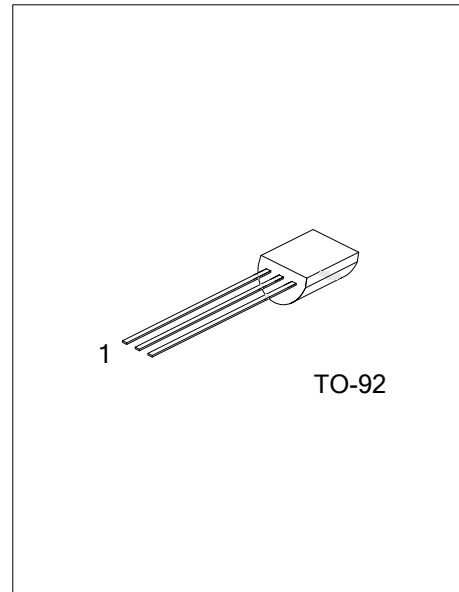
DESCRIPTION

The device is manufactured using High Voltage Multi Epitaxial Planar technology for high switching speeds and high voltage capability.

The UTC **13002AG** is designed for use in Compact Fluorescent Lamps.

FEATURES

- * High Voltage Capability
- * Low Spread of Dynamic Parameters
- * Very High Switching Speed

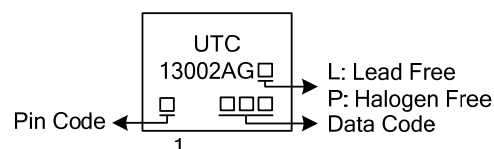


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
13002AGL-T92-A-B	13002AGP-T92-A-B	TO-92	E	C	B	Tape Box
13002AGL-T92-A-K	13002AGP-T92-A-K	TO-92	E	C	B	Bulk

13002AGL-T92-A-B (1) Packing Type (2) Pin Assignment (3) Package Type (4) Lead Free	(1) B: Bluk, K: Bulk (2) refer to Pin Assignment (3) T92: TO-92 (4) L: Lead Free, P: Halogen Free
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MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector Emitter Voltage ($V_{BE} = 0$)	V_{CES}	700	V
Collector Emitter Voltage ($I_B = 0$)	V_{CEO}	400	V
Emitter Base Voltage ($I_C = 0$)	V_{EBO}	9	V
Collector Current	I_C	0.75	A
Collector Peak Current ($t_p < 5 \text{ ms}$)	I_{CM}	0.5	A
Base Current	I_B	0.4	A
Base Peak Current ($t_p < 5 \text{ ms}$)	I_{BM}	0.75	A
Total Dissipation at $T_A = 25^\circ\text{C}$	P_D	0.95	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

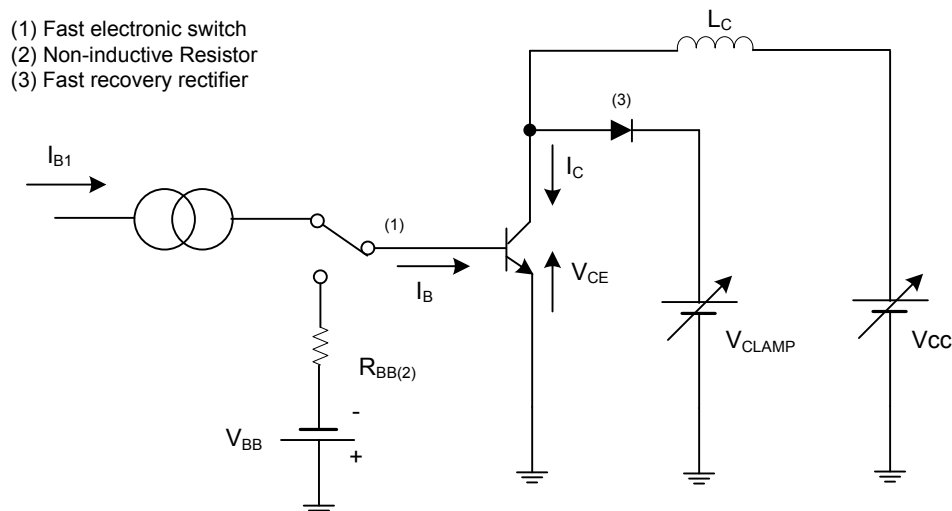
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction-ambient	θ_{JA}	130	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Emitter Sustaining Voltage ($I_B = 0$) (Note)	$V_{CEO(SUS)}$	$I_C = 1 \text{ mA}$	700			V
Collector Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C = 0.2 \text{ A}, I_B = 40 \text{ mA}$		0.2	0.5	V
		$I_C = 0.3 \text{ A}, I_B = 75 \text{ mA}$		0.3	1	
		$I_C = 0.4 \text{ A}, I_B = 135 \text{ mA}$		0.4	1.5	
Base Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	$I_C = 0.2 \text{ A}, I_B = 40 \text{ mA}$			1	V
		$I_C = 0.3 \text{ A}, I_B = 75 \text{ mA}$			1.2	
Emitter Cut off Current ($I_C = 0$)	I_{EBO}	$V_{EB} = 9 \text{ V}$			1	mA
Collector Cut off Current ($V_{BE} = -1.5\text{V}$)	I_{CEV}	$V_{CE} = 700 \text{ V}$			250	μA
DC Current Gain	h_{FE}^*	$I_C = 0.2 \text{ A}, V_{CE} = 5 \text{ V}$	12		27	
		$I_C = 0.4 \text{ A}, V_{CE} = 5 \text{ V}$	7		20	
Inductive Load Fall Time	t_F	$I_C = 0.2 \text{ A}, V_{CLAMP} = 300 \text{ V}$ $I_{B1} = -I_{B2} = 40 \text{ mA}, L = 3 \text{ mH}$		0.3		μs

Note: Pulsed: Pulse duration = 300 μs , duty cycle = 1.5 %

■ INDUCTIVE LOAD SWITCHING TEST CIRCUIT



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