



## 5302

## NPN SILICON TRANSISTOR

### HIGH VOLTAGE NPN TRANSISTOR

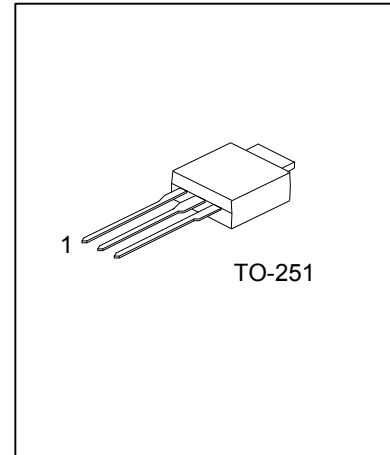
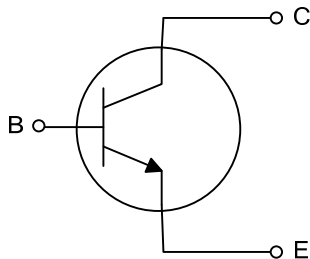
#### DESCRIPTION

The UTC 5302 is a NPN silicon planar transistor and suited to be used in power amplifier applications.

#### FEATURES

- \* Makes efficient anti-saturation operation
- \* Low variable storage-time spread
- \* Low base drive
- \* Very suitable for half bridge light ballast application

#### SYMBOL



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
5302L-TM3-T	5302G-TM3-T	TO-251	B	C	E	Tube

Note: Pin Assignment: B: Base C: Collector E: Emitter

<p>5302L-TM3-T</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) T: Tube</p> <p>(2) TM3: TO-251</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATING (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	800	V
Collector-Emitter Voltage	V <sub>CEO</sub>	400	V
Emitter-Base Voltage	V <sub>EBO</sub>	10	V
Collector Current	I <sub>C</sub>	2	A
Collector Peak Current (tp<5ms)	I <sub>CM</sub>	4	A
Base Current	I <sub>B</sub>	1	A
Base Peak Current (tp<5ms)	I <sub>BM</sub>	2	A
Power Dissipation (T <sub>C</sub> ≤25°C)	P <sub>D</sub>	25	W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-65 ~ +150	°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

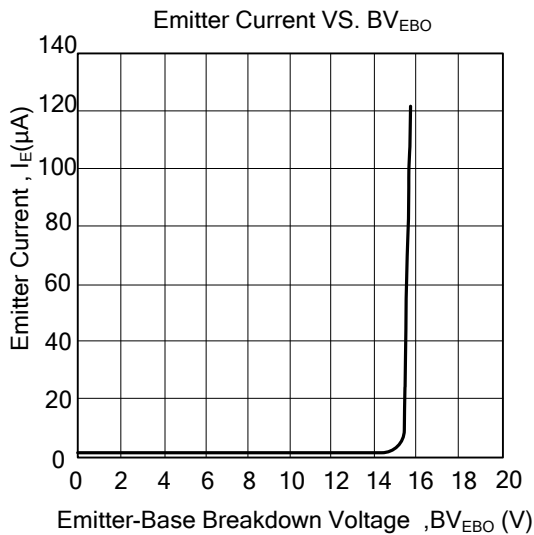
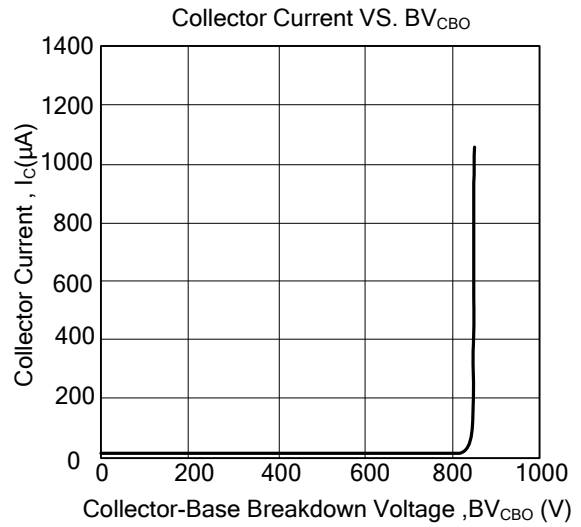
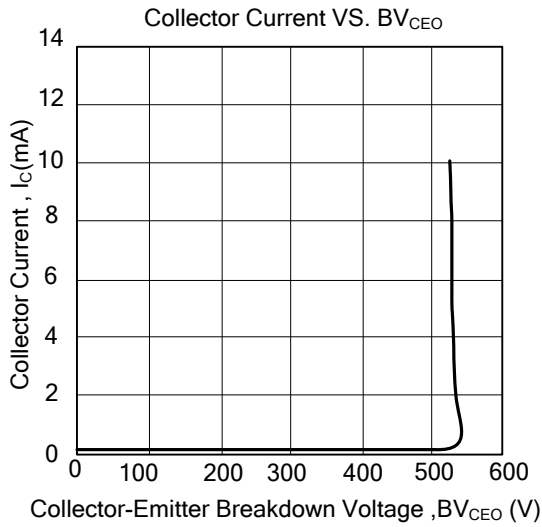
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ <sub>JA</sub>	100	°C/W
Junction to Case	θ <sub>JC</sub>	5	°C/W

■ ELECTRICAL CHARACTERISTICS (Ta = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=10mA, I_E=0$ (Note)	400			V
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=1mA, I_B=0$	800			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=1mA, I_C=0$	10			V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=800V, I_E=0$			1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=9V, I_C=0$			1	$\mu A$
<b>ON CHARACTERISTICS</b>						
DC Current Gain	$h_{FE1}$	$V_{CE}=5V, I_C=10mA$	10			
	$h_{FE2}$	$V_{CE}=5V, I_C=400mA$	10		30	
	$h_{FE3}$	$V_{CE}=5V, I_C=1A$	5			
Collector-Emitter Saturation Voltage	$V_{CE(SAT1)}$	$I_C=0.5A, I_B=0.1A$ (Note)			0.5	V
	$V_{CE(SAT2)}$	$I_C=1A, I_B=0.25A$ (Note)		1.1	1.5	
Base-Emitter Saturation Voltage	$V_{BE(SAT1)}$	$I_C=0.5A, I_B=0.1A$ (Note)			1.1	V
	$V_{BE(SAT2)}$	$I_C=1A, I_B=0.25A$ (Note)			1.2	
<b>SWITCHING CHARACTERISTICS</b>						
Turn On Time	$t_{ON}$	$V_{CC}=250V, I_C=1A,$		0.15	0.3	$\mu S$
Fall Time	$t_F$	$I_{B1}=I_{B2}=0.2A, t_p=25\mu S$		0.2	0.4	$\mu S$
Storage Time	$t_{STG}$	Duty Cycle<1%		0.5	0.9	$\mu S$

Note: Pulsed duration = 300 $\mu S$ , Duty cycle $\leq$ 2%

■ TYPICAL CHARACTERISTICS



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