



5302D

NPN SILICON TRANSISTOR

HIGH VOLTAGE NPN TRANSISTOR WITH DIODE

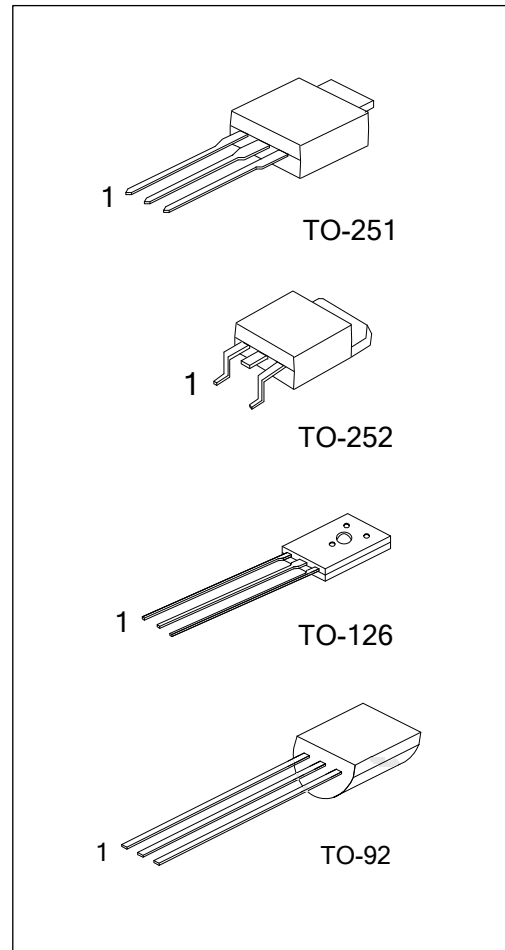
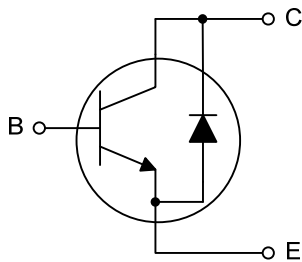
■ DESCRIPTION

The UTC **5302D** are series of NPN silicon planar transistor with diode, and its suited to be used in power amplifier applications.

■ FEATURES

- * Internal free-wheeling diode
- * 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 Plating	Halogen Free		1	2	3	
5302DL-T60-K	5302DG-T60-K	TO-126	B	C	E	Bulk
5302DL-T92-B	5302DG-T92-B	TO-92	B	C	E	Tape Box
5302DL-T92-K	5302DG-T92-K	TO-92	B	C	E	Bulk
5302DL-TM3-T	5302DG-TM3-T	TO-251	B	C	E	Tube
5302DL-TN3-R	5302DG-TN3-R	TO-252	B	C	E	Tape Reel

<p>5302DL-T60-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) B: Tape Box, K: Bulk, T: Tube, R: Tape Reel</p> <p>(2) T60: TO-126, T92: TO-92, TM3: TO-251, TN3: TO-252</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_{CBO}	800	V
Collector-Emitter Voltage		V_{CEO}	400	V
Emitter-Base Voltage		V_{EBO}	10	V
Collector Current		I_C	2	A
Collector Peak Current (tp<5ms)		I_{CM}	4	A
Base Current		I_B	1	A
Base Peak Current (tp<5ms)		I_{BM}	2	A
Power Dissipation ($T_C \leq 25^\circ\text{C}$)	TO-126	P_D	12.5	W
	TO-92		1.6	W
	TO-251		25	W
	TO-252		25	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-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

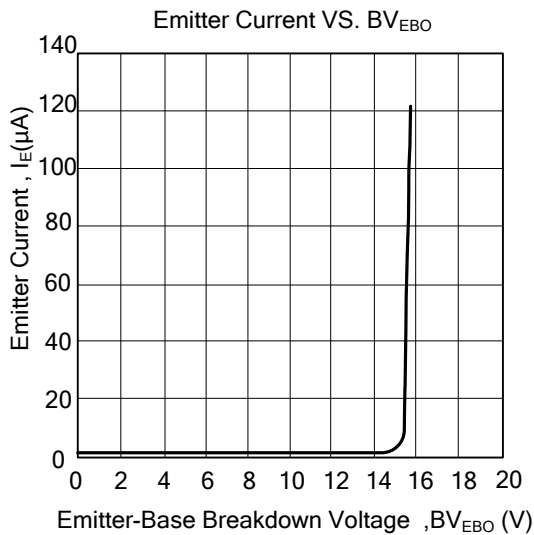
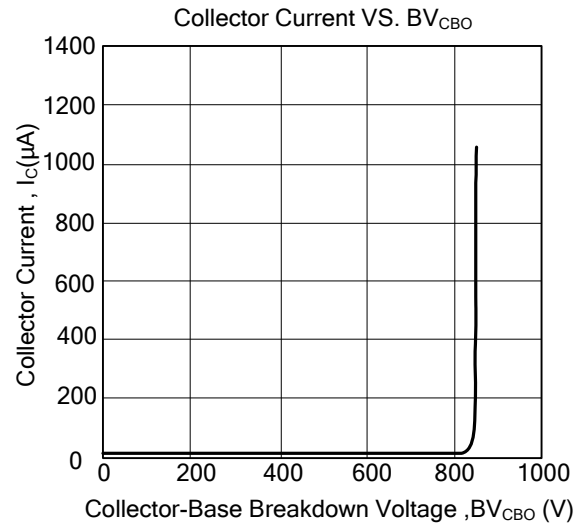
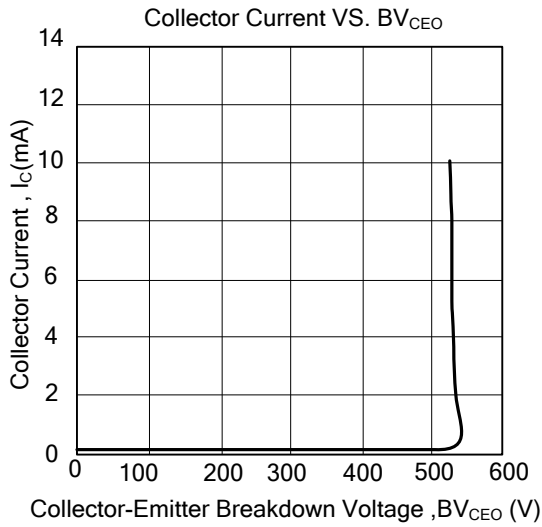
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-126	θ_{JA}	122	°C/W
	TO-92		160	
	TO-251		100	
	TO-252		100	
Junction to Case	TO-126	θ_{JC}	10	°C/W
	TO-92		80	
	TO-251		5	
	TO-252		5	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
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	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=9V, I_C=0$			1	μA
ON CHARACTERISTICS						
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	
SWITCHING CHARACTERISTICS						
Turn On Time	t_{ON}	$V_{CC}=250V, I_C=1A,$		0.15	0.3	μS
Fall Time	t_F	$I_{B1}=I_{B2}=0.2A, t_p=25\mu S$		0.2	0.4	μS
Storage Time	t_{STG}	Duty Cycle<1%		0.5	0.9	μS
Diode						
Forward Voltage Drop	V_F	$I_C=1A$			1.4	V
Fall Time	t_F	$I_C=1A$			800	μS

Note: Pulsed duration = 300 μS , Duty cycle \leq 2%

TYPICAL CHARACTERISTICS



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