



5302D

NPN SILICON TRANSISTOR

HIGH VOLTAGE NPN TRANSISTOR WITH DIODE

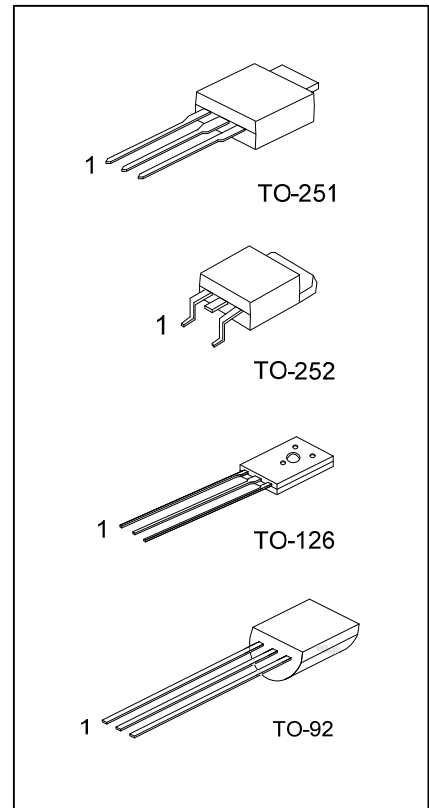
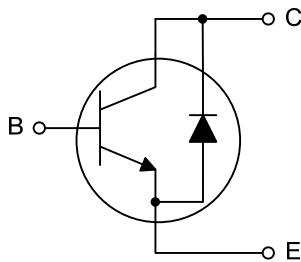
DESCRIPTION

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	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	E	C	B	Tape Box
5302DL-T92-K	5302DG-T92-K	TO-92	E	C	B	Bulk
5302DL-T92-R	5302DG-T92-R	TO-92	E	C	B	Tape Reel
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
5302DL-TN3-T	5302DG-TN3-T	TO-252	B	C	E	Tube

5302DL-T60-T (1)Packing Type (2)Package Type (3)Lead Free	(1) B: Tape Box, K: Bulk, T: Tube, R: Tape Reel (2) T60: TO-126, T92: TO-92, TM3: TO-251, TN3: TO-252 (3) G: Halogen Free, L: Lead Free
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■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$, 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 ($t_P < 5\text{ms}$)		I_{CM}	4	A
Base Current		I_B	1	A
Base Peak Current ($t_P < 5\text{ms}$)		I_{BM}	2	A
Power Dissipation ($T_C \leq 25^{\circ}\text{C}$)	TO-126	P_D	12.5	W
	TO-92		1.6	
	TO-251/ TO-252		25	
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-65 ~ +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

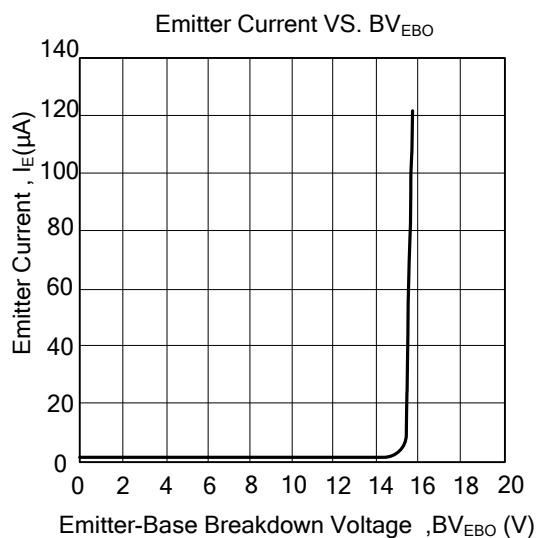
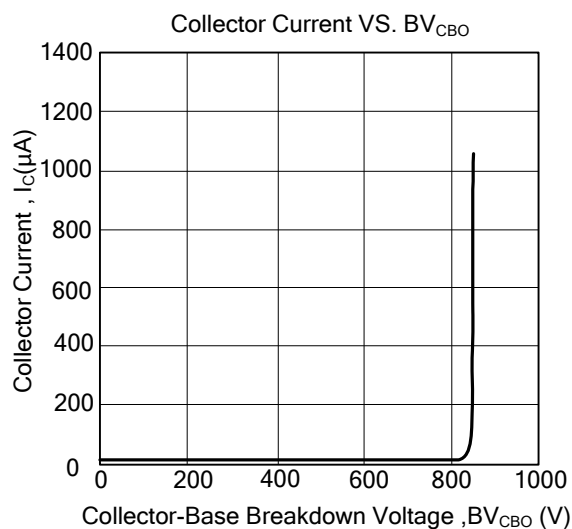
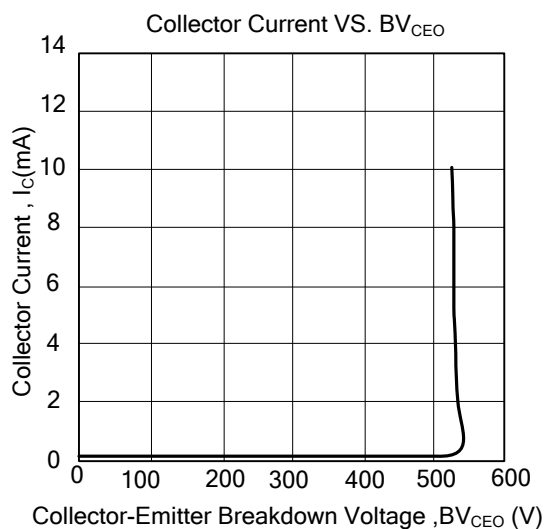
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-126	θ_{JA}	122	$^{\circ}\text{C/W}$
	TO-92		160	
	TO-251/ TO-252		100	
Junction to Case	TO-126	θ_{JC}	10	$^{\circ}\text{C/W}$
	TO-92		80	
	TO-251/ TO-252		5	

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

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		40	
	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 =25uS		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	uS

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

TYPICAL CHARACTERISTICS



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