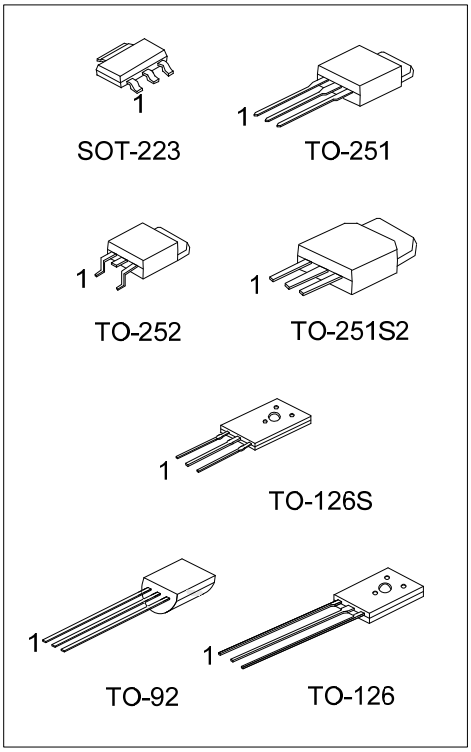
5302D

NPN SILICON TRANSISTOR

HIGH VOLTAGE NPN TRANSISTOR WITH DIODE



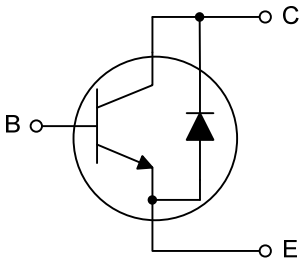
■ DESCRIPTION

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

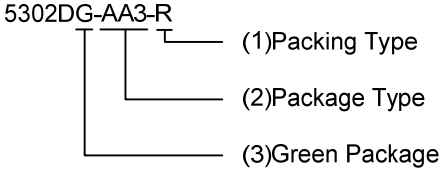
■ SYMBOL



■ ORDERING INFORMATION

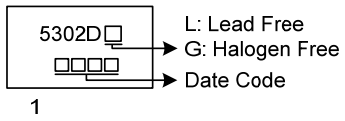
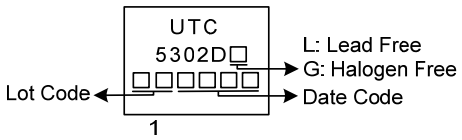
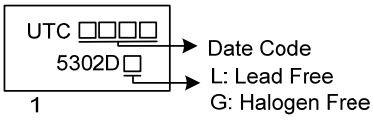
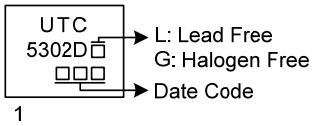
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
5302DL-AA3-R	5302DG-AA3-R	SOT-223	B	C	E	Tape Reel
5302DL-T60-K	5302DG-T60-K	TO-126	B	C	E	Bulk
5302DL-T6S-K	5302DG-T6S-K	TO-126S	B	C	E	Bulk
5302DL-T92-B	5302DG-T92-B	TO-92	E	C	B	Tape Box
5302DL-T92-K	5302DG-T92-K	TO-92	E	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-TMS2-T	5302DG-TMS2-T	TO-251S2	B	C	E	Tube
5302DL-TN3-R	5302DG-TN3-R	TO-252	B	C	E	Tape Reel

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



(1) R: Tape Reel, T: Tube, B: Tape Box, K: Bulk
(2) AA3: SOT-223, TM3: TO-251, TMS2: TO-251S2
TN3: TO-252, T60: TO-126, T6S: TO-126S
T92: TO-92
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-223	TO-251 / TO-251S2 / TO-252
	
TO-126 / TO-126S	**TO-92**
	

■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	700	V
Collector-Emitter Voltage		V_{CEO}	400	V
Emitter-Base Voltage		V_{EBO}	9	V
Collector Current		I_C	1.3	A
Collector Peak Current (t_P<5ms)		I_{CM}	2.6	A
Power Dissipation (T_C≤25°C)	SOT-223	P_D	1	W
	TO-251/TO-251S2 TO-252		25	W
	TO-126/TO-126S		12.5	W
	TO-92		1.5	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	SOT-223	θ_{JA}	175	°C/W
	TO-251/TO-251S2 TO-252		100	°C/W
	TO-126/TO-126S		122	°C/W
	TO-92		160	°C/W
Junction to Case	SOT-223	θ_{JC}	125	°C/W
	TO-251/TO-251S2 TO-252		5	°C/W
	TO-126/TO-126S		10	°C/W
	TO-92		80	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=1mA, I_B=0	700			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=10mA, I_E=0 (Note)	400			V
Collector-Emitter Breakdown Voltage	BV_{CES}	I_C=1mA, V_{BE}=0V	700			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=1mA, I_C=0	9			V
Collector Cutoff Current	I_{CBO}	V_{CB}=700V, 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=5mA	10			
	h_{FE2}	V_{CE}=5V, I_C=200mA	15		30	
Collector-Emitter Saturation Voltage	$V_{CE(SAT1)}$	I_C=0.5A, I_B=0.1A (Note)			0.8	V
Base-Emitter Saturation Voltage	$V_{BE(SAT1)}$	I_C=0.5A, I_B=0.1A (Note)			1.5	V
SWITCHING CHARACTERISTICS						
Storage Time	t_{STG}	V_{CC}=250V, I_C=0.1A, I_{B1}=I_{B2}=10mA, t_P=25uS Duty Cycle<1%	2		3	μS
DIODE						
Forward Voltage Drop	V_F	I_C=1A			1.4	V

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