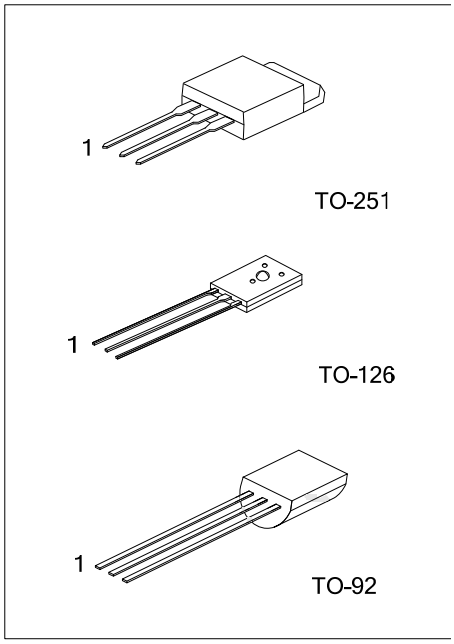
NPN SILICON BIPOLAR TRANSISTORS FOR LOW FREQUENCY AMPLIFICATION



■ DESCRIPTION

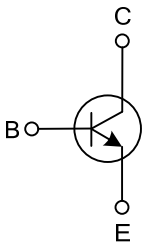
The UTC **13003BS** is a silicon NPN power switching transistor; it uses UTC's advanced technology to provide customers high collector-base breakdown voltage, low reverse leakage current and high reliability, etc.

The UTC **13003BS** is suitable for electronic ballast power switch circuit and the compact electronic energy-saving light.

■ FEATURES

* High collector-base breakdown voltage
* Low reverse leakage current
* High reliability

■ EQUIVALENT CIRCUIT



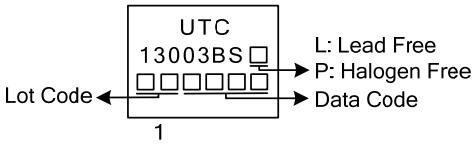
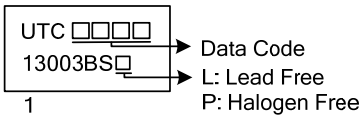
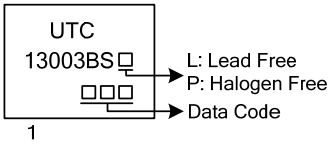
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
13003BSL-TM3-T	13003BSG-TM3-T	TO-251	B	C	E	Tube
13003BSL-T60-K	13003BSG-T60-K	TO-126	B	C	E	Bulk
13003BSL-T92-B	13003BSG-T92-B	TO-92	B	C	E	Tape Box
13003BSL-T92-K	13003BSG-T92-K	TO-92	B	C	E	Bulk

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

13003BSL-TM3-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube, B: Bluk, K: Bulk (2) TM3: TO-251, T60: TO-126, T92: TO-92 (3) L: Lead Free, G: Halogen Free

■ MARKING INFORMATION

PACKAGE	MARKING
TO-251	
TO-126	
TO-92	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	800	V
Collector-Emitter Voltage		V_{CEO}	450	V
Emitter-Base Voltage		V_{EBO}	9	V
Collector Current	Continuous	I_C	2	A
	Peak	I_{CM}	4	A
Base Current	Continuous	I_B	1	A
	Peak	I_{BM}	2	A
Power Dissipation (T_C=25°C)	TO-251	P_D	10	W
	TO-126		20	W
	TO-92		1	W
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{STG}	-55~+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	RATING	UNIT
Junction to Ambient	TO-251	θ_{JA}	90	°C/W
	TO-126		100	
	TO-92		150	
Junction to Case	TO-251	θ_{JC}	12.5	°C/W
	TO-126		7.5	
	TO-92		100	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=1mA, I_E=0	800			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=1mA, I_B=0	450			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=1mA, I_C=0	9			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=800V, I_E=0			0.1	mA
Collector-Emitter Cut-Off Current	I_{CEO}	V_{CE}=450V, I_B=0			0.1	mA
Emitter-Base Cut-Off Current	I_{EBO}	V_{EB}=9V, I_C=0			0.1	mA
DC Current Gain (Note)	h_{FE}	V_{CE}=5V, I_C=0.2mA	20		35	
Low current and high current h_{FE2} h_{FE1} ratio	h_{FE1}/ h_{FE2}	h_{FE1}: V_{CE}=5V, I_C=5mA h_{FE2}: V_{CE}=5V, I_C=0.2A	0.75			
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	I_C=0.5A, I_B=0.1A			0.8	V
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	I_C=0.5A, I_B=0.1A			1.5	V
Storage Time	t_S	UI9600, I_C=0.25A	2		5	μs
Rise Time	t_R				2	μs
Fall Time	t_F				2	μs
Transition Frequency	f_T	V_{CE}=10V, I_C=0.1A, f=1MHz	5			MHz

Note: Pulse test, pulse width tp≤300μs, Duty cycle≤2%.