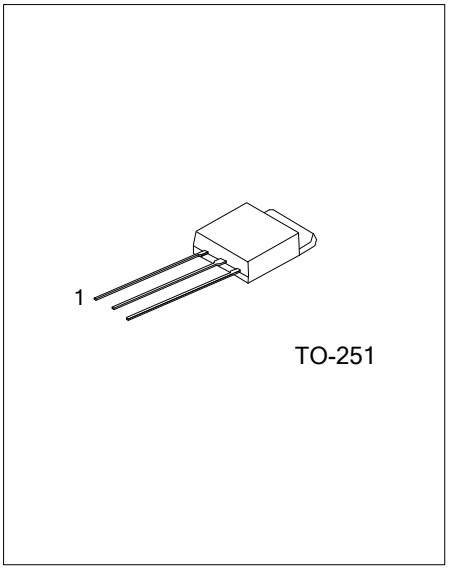
5303D **Preliminary** ***NPN SILICON TRANSISTOR***

HIGH VOLTAGE NPN TRANSISTOR WITH DIODE



Lead-free: 5303DL
Halogen-free: 5303DG

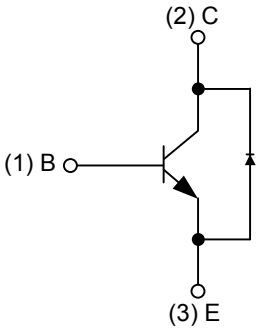
■ DESCRIPTION

The UTC **5303D** is a high voltage silicon triple diffused type NPN transistor with diode. This chip is built in free-wheeling diode , makeing efficient anti-saturation operation.

■ FEATURES

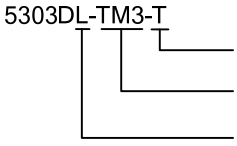
* Not Necessary to Interest an h_{FE} Value
* Need Very Low Base Drive
* Can Be Used In Half Bridge Light Ballast Application

■ INTERNAL SCHEMATIC DIAGRAM



■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free Plating	Halogen Free		1	2	2	
5303D-TM3-T	5303DL-TM3-T	5303DG-TM3-T	TO-251	B	C	E	Tube



(1) T: Tube
(2) TM3: TO-251
(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATING (Ta = 25°C,unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	700	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
Collector Dissipation (T_C≤25°C)	P_C	25	W
Maximum Operating Junction Temperature	T_J	+150	°C
Storage Temperature Range	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	θ_{JA}	100	°C/W
Junction to Case	θ_{JC}	6.25	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Base Voltage	BV_{CBO}	I_C = 1mA, I_B = 0	700			V
Collector-Emitter Breakdown Voltage (Note)	BV_{CEO}	I_C = 10mA, I_E = 0	400			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E = 1mA, I_C = 0	10			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 =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 (Note)	$V_{CE(SAT1)}$	I_C =0.5A, I_B =0.1A			0.5	V
	$V_{CE(SAT2)}$	I_C =1A, I_B =0.25A		1.1	1.5	V
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	I_C =0.5A, I_B =0.1A			1.1	V
	$V_{BE(SAT2)}$	I_C =1A, I_B =0.25A			1.2	V
SWITCHING CHARACTERISTICS						
Turn On Time	t_{ON}	V_{CC} =250V, I_C =1A, I_{B1}=I_{B2} =0.2A, t_p =25uS Duty Cycle<1%		0.15	0.3	μS
Storage Time	t_{STG}			0.5	0.9	μS
Fall Time	t_F			0.2	0.4	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 = 300μS, duty cycle ≤2%