



TUL1203

NPN SILICON TRANSISTOR

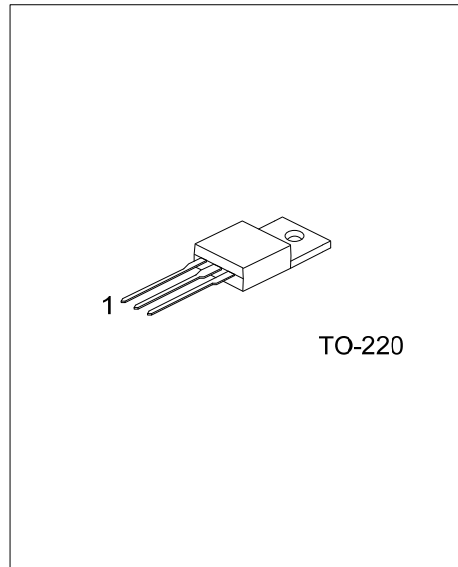
HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

DESCRIPTION

The **TUL1203** is manufactured by using high voltage Planar technology for high voltage capability and high switching speeds.

FEATURES

- * BV_{CES} Up To 1400V.
- * Better Distribution Of Dynamic Parameters And Lot To Lot Spread
- * High Switching Speed



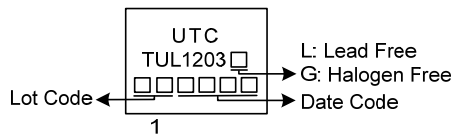
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen-Free		1	2	3	
TUL1203L-TA3-T	TUL1203G-TA3-T	TO-220	B	C	E	Tube

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

<p>TUL1203G-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage ($I_E = 0$)	V_{CBO}	1400	V
Collector-Emitter Voltage ($V_{BE} = 0$)	V_{CES}	1400	V
Collector-Emitter Voltage ($I_B = 0$)	V_{CEO}	550	V
Emitter-Base Voltage ($I_C = 0$)	V_{EBO}	12	V
Collector Current	I_C	5	A
Collector Peak Current ($t_p < 5$ ms)	I_{CM}	8	A
Base Current	I_B	2	A
Base Peak Current ($t_p < 5$ ms)	I_{BM}	4	A
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	100	W
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

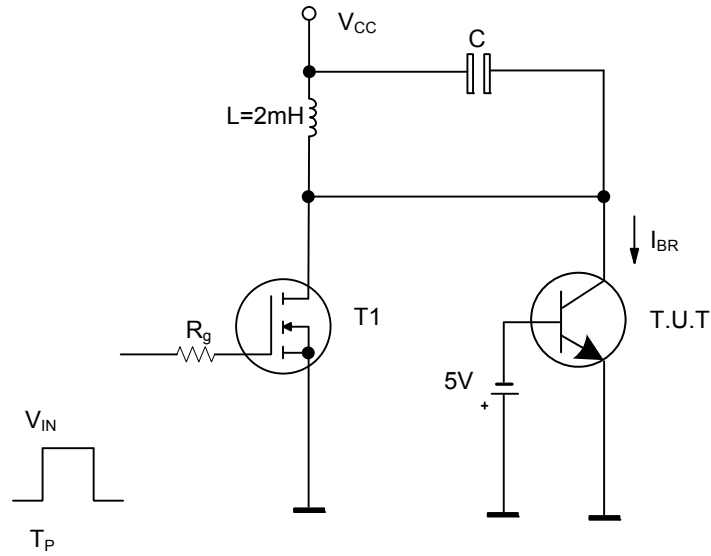
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ_{JC}	1.25	$^\circ\text{C}/\text{W}$

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

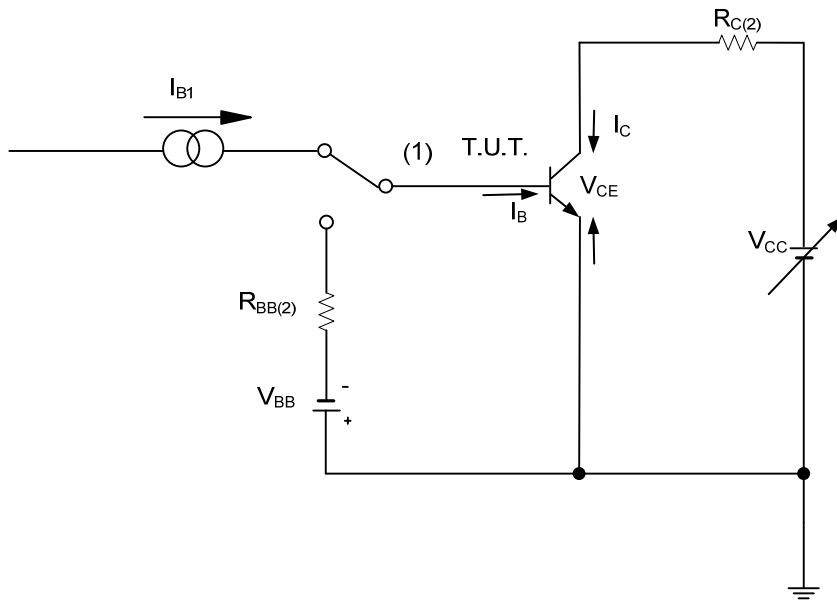
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Collector Cut-off Current ($V_{BE} = 0$)	I_{CES}	$V_{CE}=1400\text{V}$			100	μA	
Emitter Cut-off Current ($I_B = 0$)	I_{EBO}	$V_{EB}=12\text{V}$			100	μA	
Collector-Emitter Sustaining Voltage ($I_B = 0$) (Note)	$V_{CEO(SUS)}$	$I_C=100\text{mA}$	550			V	
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	$I_C=1\text{A}, I_B=200\text{mA}$			0.5	V	
		$I_C=2\text{A}, I_B=400\text{mA}$			0.7	V	
		$I_C=3\text{A}, I_B=1\text{A}$			1.5	V	
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	$I_C=2\text{A}, I_B=400\text{mA}$			1.5	V	
		$I_C=3\text{A}, I_B=1\text{A}$			1.5	V	
DC Current Gain (Note)	h_{FE}	$I_C=1\text{mA}, V_{CE}=5\text{V}$	10				
		$I_C=10\text{mA}, V_{CE}=5\text{V}$	10				
		$I_C=0.8\text{A}, V_{CE}=3\text{V}$	14		32		
		$I_C=2\text{A}, V_{CE}=5\text{V}$	9		28		
Resistive Load	Storage Time	t_s	$I_C=2\text{A}, V_{CC}=150\text{V}$		2.5	3.0	μs
	Fall Time	t_f	$I_{B1}=0.4\text{A}, I_{B2}=-0.8\text{A}, T_p=30\mu\text{s}$		0.2	0.3	μs
Avalanche Energy	E_{AR}	$L=2\text{mH}, C=1.8\text{nF}$ $I_{BR}\leq 2.5\text{A}, 25^\circ\text{C} < T_C < 125^\circ\text{C}$	6			mJ	

Note: Pulse Test: Pulse width = 300 μs , Duty cycle \leq 1.5%

■ TEST CIRCUITS

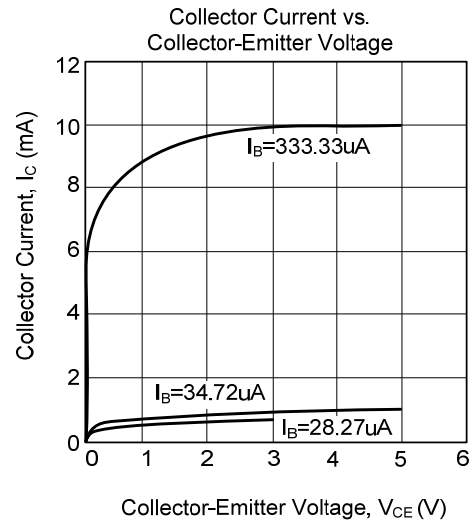
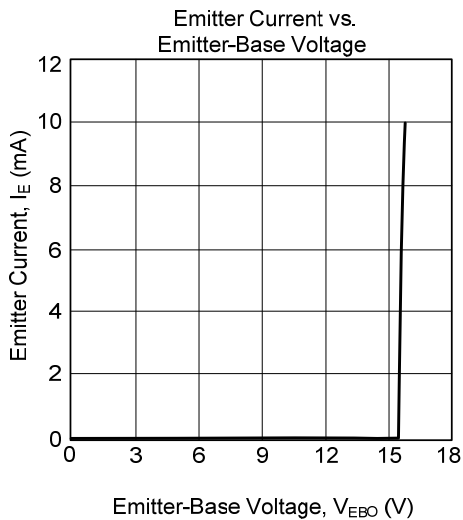
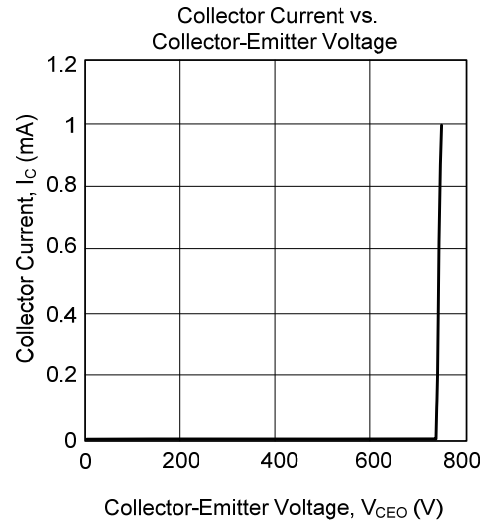
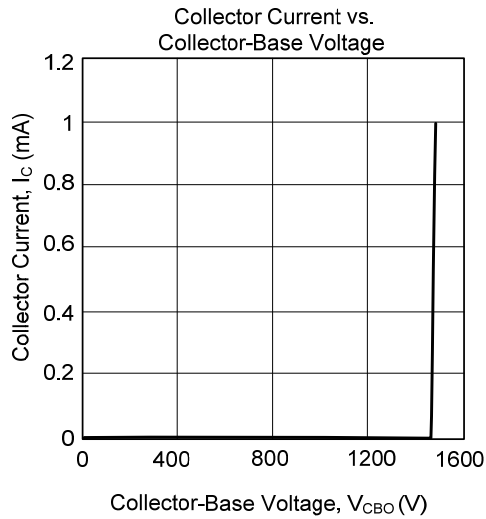


Energy Rating Test Circuit



Resistive Load Switching Test Circuit

■ TYPICAL CHARACTERISTICS



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