D4203D Preliminary

# HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

### **■** DESCRIPTION

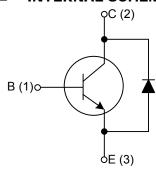
The UTC **D4203D** is a high voltage fast-switching NPN power transistor. It is characterized by high breakdown voltage, high current capability, high switching speed and high reliability.

The UTC **D4203D** is intended to be used in energy-saving lights, electronic ballasts, high frequency switching power supplies, high frequency power transforms or common power amplifier, etc.

### **■** FEATURES

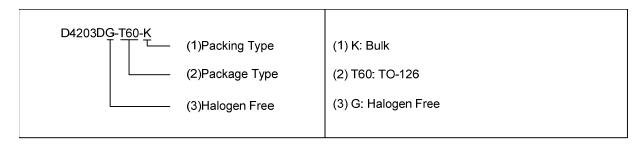
- \* High Breakdown Voltage
- \* High Current Capability
- \* High Switching Speed
- \* High Reliability
- \* High Resistance to Shock
- \* Built-In Diode

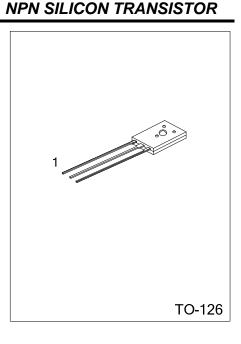
## ■ INTERNAL SCHEMATIC DIAGRAM



### **■ ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen-Free		1	2	3	
D4203DL-T60-K	D4203DG-T60-K	TO-126	В	С	Е	Bulk





# ■ ABSOLUTE MAXIMUM RATINGS (T<sub>C</sub>=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector- Base Voltage	$V_{CBO}$	700	V
Collector-Emitter Voltage (I <sub>B</sub> =0)	$V_{CEO}$	400	<b>V</b>
Emitter-Base Voltage	$V_{EBO}$	9	V
Collector Current (DC)	lc	2.0	Α
Collector Current (pulse)	I <sub>CP</sub>	4.0	Α
Total Power Dissipation	Pc	20	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

Notes: 1. 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.

2. Pulse Test: Pulse Width = 5.0ms, Duty Cycle < 10%.

### **■ THERMAL DATA**

PARAMETER	SYMBOL	RATINGS	UNIT	
Junction to Case	$\theta_{JC}$	6.25	°C/W	

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Emitter Sustaining Voltage		V <sub>CEO(SUS)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0	400			V
Collector -Base Breakdown Voltage		$BV_CBO$	$I_C=1$ mA, $I_E=0$	700			V
Emitter-Base Breakdown Voltage		$BV_{EBO}$	$I_E = 1 \text{mA}, I_C = 0$	9			V
Collect - Base Cut-off Current		I <sub>CBO</sub>	$V_{CB}$ =680V, $I_{E}$ =0			100	μΑ
Collect - Emitter Cut-off Current		I <sub>CEO</sub>	V <sub>CE</sub> =400V,I <sub>B</sub> =0			50	μΑ
Emitter - Base Cut-off Current		$I_{EBO}$	$V_{EB}$ =7 $V$ , $I_{C}$ =0			10	μΑ
DC Current Gain		h <sub>FE1</sub>	$V_{CE}$ =5V, $I_{C}$ =5mA	6		40	
		h <sub>FE2</sub>	$V_{CE}$ =10V, $I_{C}$ =200 mA	8		40	
Collector-Emitter Saturation Voltage		$V_{CE(SAT)1}$	I <sub>C</sub> =0.5A, I <sub>B</sub> =0.1A			0.5	V
		$V_{CE(SAT)2}$	I <sub>C</sub> =1.5A, I <sub>B</sub> =0.5A			2	V
Base-Emitter Saturation Voltage		$V_{BE(SAT)}$	I <sub>C</sub> =1A, I <sub>B</sub> =0.25A			1.8	V
Resistive Load	Fall Time	$t_{F}$	V <sub>CC</sub> =24 V, I <sub>C</sub> =2A, I <sub>B1</sub> =-I <sub>B2</sub> =0.4A			0.7	μs
	Storage Time	t <sub>S</sub>	V <sub>CC</sub> -24 V, I <sub>C</sub> -2A, I <sub>B1</sub> =-I <sub>B2</sub> =0.4A			4	μs
Current Gain Bandwidth Product		f⊤	V <sub>CE</sub> =10V, I <sub>C</sub> =0.5A	4			$MH_Z$

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