



# 800V/1.5A Switching Regulator Applications

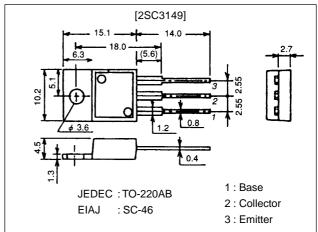
#### **Features**

- · High breakdown voltage (V<sub>CBO</sub>≥900V).
- · Fast switching speed.
- · Wide ASO.

### **Package Dimensions**

unit:mm

2010C



## **Specifications**

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		900	V
Collector-to-Emitter Voltage	VCEO		800	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		7	V
Collector Current	IC		1.5	Α
Collector Current (Pulse)	I <sub>CP</sub>	PW≤300μs, Duty Cycle≤10%	5	Α
Base Current	I <sub>B</sub>		0.8	Α
Collector Dissipation	PC	Tc=25°C	40	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Oill
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =800V, I <sub>E</sub> =0			10	μΑ
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			10	μΑ
DC Current Gain	h <sub>FE</sub> 1	V <sub>CE</sub> =5V, I <sub>C</sub> =0.1A	10*		40*	
	h <sub>FE</sub> 2	V <sub>CE</sub> =5V, I <sub>C</sub> =0.5A	8			
Gain-Bandwidth Product	fT	V <sub>CE</sub> =10V, I <sub>C</sub> =0.1A		15		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHz		30		pF

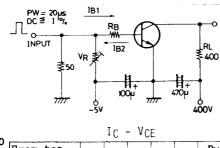
 $<sup>*:</sup> The \ h_{FE} 1 \ of the \ 2SC3149 \ is \ classified \ as \ follows. \ When \ specifying \ the \ h_{FE} 1 \ rank, \ specify \ two \ ranks \ or \ more \ in \ principle.$ 

10 K 20 | 15 L 30 | 20 M 40

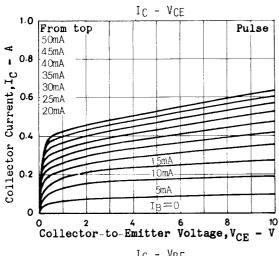
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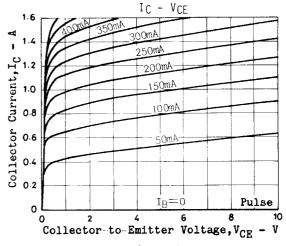
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Uill
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =0.75A, I <sub>B</sub> =0.15A			2.0	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =0.75A, I <sub>B</sub> =0.15A			1.5	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)</sub> CBO	I <sub>C</sub> =1mA, I <sub>E</sub> =0	900			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I <sub>C</sub> =5mA, R <sub>BE</sub> =∞	800			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	$I_E=1$ mA, $I_C=0$	7			٧
Collector-to-Emitter Sustain Voltage	VCEO(sus)	I <sub>C</sub> =1.5A, L=1mH, I <sub>B</sub> =0.5A	800			V
Collector-to-Emitter Sustain Voltage	VCEX(sus)1	I <sub>C</sub> =0.5A, I <sub>B1</sub> =0.1A, I <sub>B2</sub> =-0.1A, L=5mH, clamped	800			V
	VCEX(sus)2	I <sub>C</sub> =0.25A, I <sub>B1</sub> =0.05A, I <sub>B2</sub> =-0.05A, L=10mH, clamped	900			V
Turn-ON Time	ton	I <sub>C</sub> =1A, I <sub>B1</sub> =0.2A, I <sub>B2</sub> =-0.4A, R <sub>L</sub> =400Ω, V <sub>CC</sub> =400V			1.0	μs
Storage Time	t <sub>stg</sub>	I <sub>C</sub> =1A, I <sub>B1</sub> =0.2A, I <sub>B2</sub> =-0.4A, R <sub>L</sub> =400Ω, V <sub>CC</sub> =400V			3.0	μs
Fall Time	t <sub>f</sub>	I <sub>C</sub> =1A, I <sub>B1</sub> =0.2A, I <sub>B2</sub> =-0.4A, R <sub>L</sub> =400Ω, V <sub>CC</sub> =400V			0.7	μs

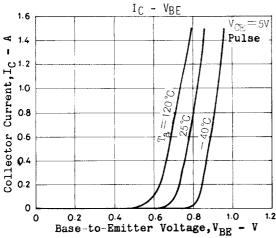
### **Switching Time Test Circuit**

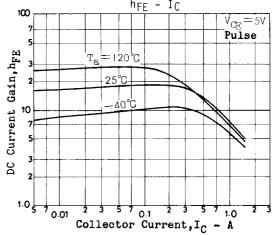


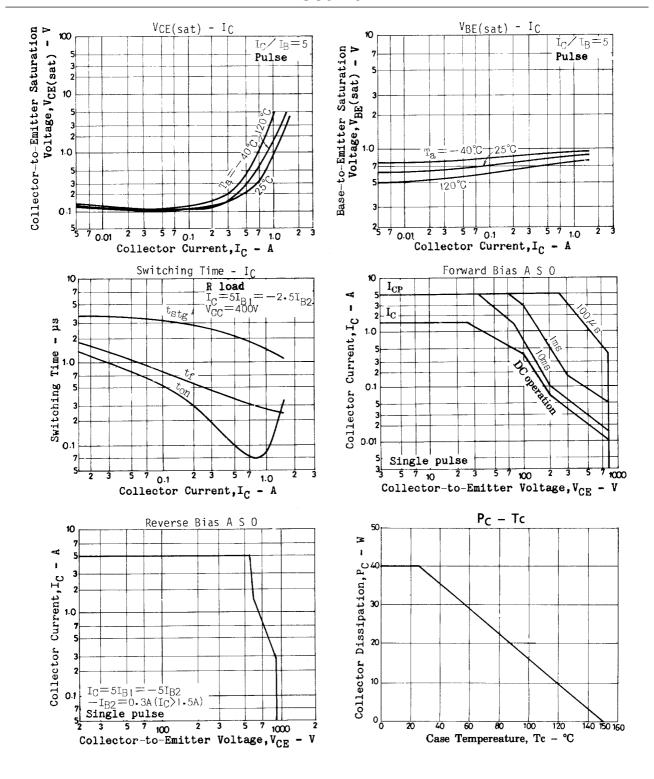
Unit (resistance :  $\Omega$ , capacitance : F)











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