2SC4429



# 800V/8A Switching Regulator Applications

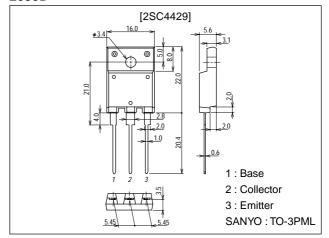
#### **Features**

- · High breakdown voltage, high reliability.
- · Fast switching speed ( $t_f$ : 0.1 $\mu$ s typ).
- · Wide ASO.
- · Adoption of MBIT process.
- · Micaless package facilitating easy mounting.

### **Package Dimensions**

unit:mm

2039D



## **Specifications**

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

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Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		1100	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		800	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		7	V
Collector Current	l <sub>C</sub>		8	Α
Collector Current (Pulse)	I <sub>CP</sub>	PW≤300μs, duty cycle≤10%	25	Α
Base Current	Ι <sub>Β</sub>		4	Α
Collector Dissipation	PC		3	W
		Tc=25°C	60	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	Offic
Collector Cutoff Current	ICBO	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> =0.6A	10		40	
	h <sub>FE</sub> 2	V <sub>CE</sub> =5V, I <sub>C</sub> =3A	8			

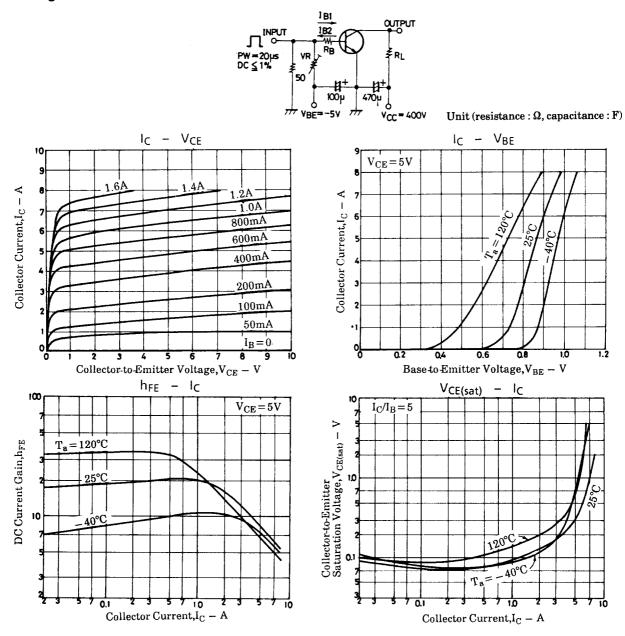
\*: The h<sub>FE</sub>1 of the 2SC4429 is classified as follows. When specifying the h<sub>FE</sub>1 rank, specify two ranks or more in principle.

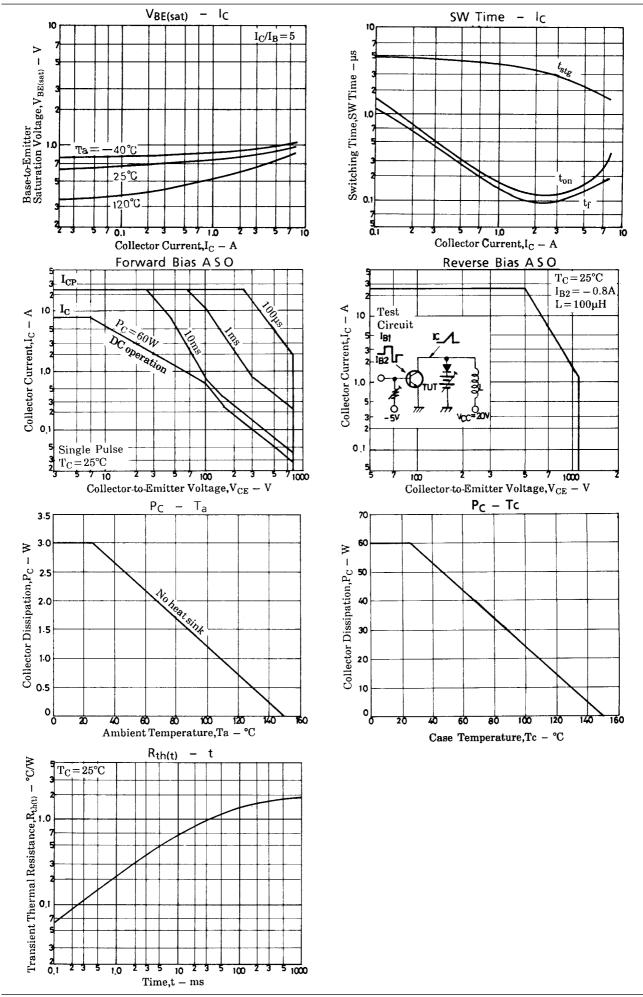
10 K 20 15 L 30 20 M 40

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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Oill
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =4A, I <sub>B</sub> =0.8A			2.0	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =4A, I <sub>B</sub> =0.8A			1.5	V
Gain-Bandwidth Product	fT	V <sub>CE</sub> =10V, I <sub>C</sub> =0.6A		15		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHz		155		pF
Collector-to-Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =1mA, I <sub>E</sub> =0	1100			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(BR)EBO	I <sub>E</sub> =1mA, I <sub>C</sub> =0	7			V
Collector-to-Emitter Sustain Voltage	V <sub>CEX(sus)</sub>	I <sub>C</sub> =4A, I <sub>B1</sub> =0.8A, I <sub>B2</sub> =-0.8A, L=1mH, Clamped	800			V
Turn-ON Time	ton	I <sub>C</sub> =6A, I <sub>B1</sub> =1.2A, I <sub>B2</sub> =-2.4A, R <sub>L</sub> =66.7Ω, V <sub>CC</sub> =400V			0.5	μs
Storage Time	t <sub>stg</sub>	I <sub>C</sub> =6A, I <sub>B1</sub> =1.2A, I <sub>B2</sub> =-2.4A, R <sub>L</sub> =66.7Ω, V <sub>CC</sub> =400V			3.0	μs
Fall Time	t <sub>f</sub>	I <sub>C</sub> =6A, I <sub>B1</sub> =1.2A, I <sub>B2</sub> =-2.4A, R <sub>L</sub> =66.7Ω, V <sub>CC</sub> =400V			0.3	μs

### **Switching Time Test Circuit**





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