NPN Triple Diffused Planar Silicon Transistor



2SC3150

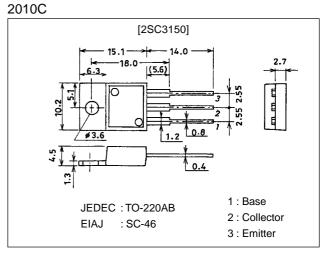
# 800V/3A Switching Regulator Applications

## Features

- · High breakdown voltage ( $V_{CBO} \ge 900V$ ).
- · Fast switching speed.
- $\cdot$  Wide ASO.

# **Package Dimensions**

unit:mm



# **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	VEBO		7	V
Collector Current	IC		3	A
Collector Current (Pulse)	I <sub>CP</sub>	PW≤300µs, Duty Cycle≤10%	10	A
Base Current	Ι <sub>Β</sub>		1.5	A
Collector Dissipation	PC	Tc=25°C	50	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	Onit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =800V, I <sub>E</sub> =0			10	μΑ
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =5V, I <sub>C</sub> =0			10	μΑ
DC Current Gain	h <sub>FE</sub> 1	$V_{CE}=5V, I_{C}=0.2A$	10*		40*	
	h <sub>FE</sub> 2	V <sub>CE</sub> =5V, I <sub>C</sub> =1A	8			
Gain-Bandwidth Product	fT	V <sub>CE</sub> =10V, I <sub>C</sub> =0.2A		15		MHz
Output Capacitance	Cob	V <sub>CB</sub> =10V, f=1MHz		60		pF

\*: The  $h_{FE1}$  of the 2SC3150 is classified as follows. When specifying the  $h_{FE1}$  rank, specify two ranks or more in principle.

10 K 20 15 L 30 20 M 40

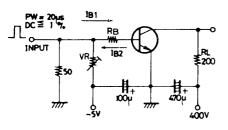
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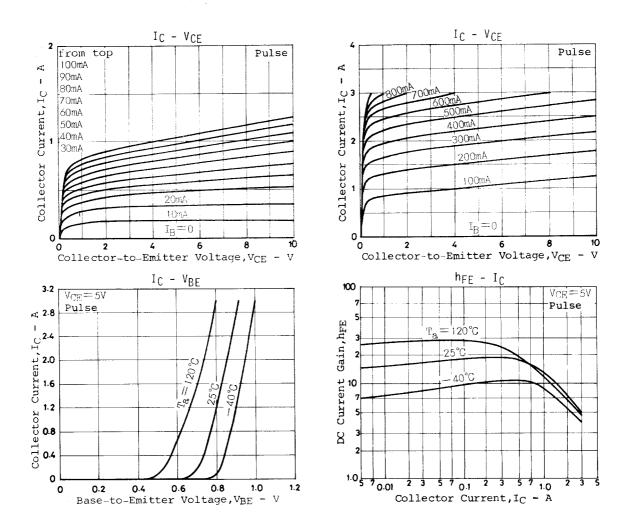
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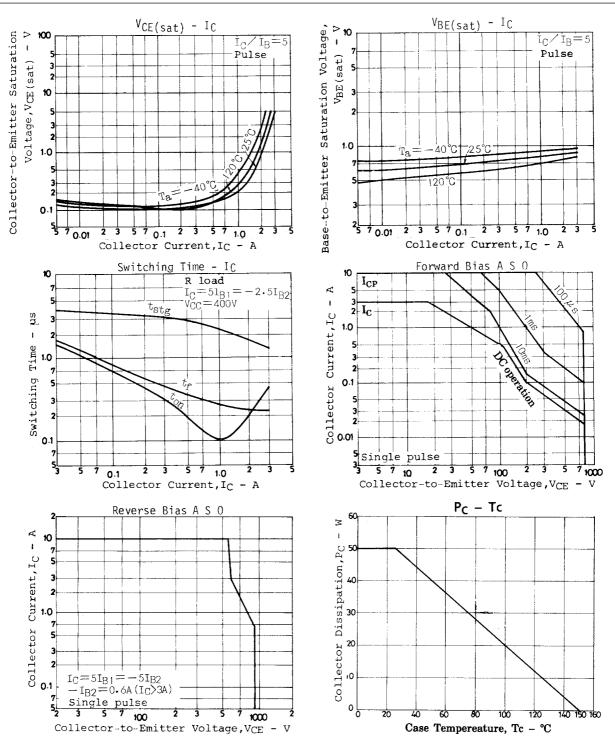
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Unit
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =1.5A, I <sub>B</sub> =0.3A			2.0	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =1.5A, I <sub>B</sub> =0.3A			1.5	V
Collector-to-Base Breakdown Voltage	V(BR)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(BR)EBO	IE=1mA, IC=0	7			V
Collector-to-Emitter Sustain Voltage	VCEO(sus)	I <sub>C</sub> =3A, L=500μH, I <sub>B</sub> =1A	800			V
Collector-to-Emitter Sustain Voltage	VCEX(sus)1	I <sub>C</sub> =1A, I <sub>B1</sub> =0.2A, I <sub>B2</sub> =-0.2A, L=2mH, clamped	800			V
	VCEX(sus)2	I <sub>C</sub> =0.5A, I <sub>B1</sub> =0.1A, I <sub>B2</sub> =-0.1A, L=5mH, clamped	900			V
Turn-ON Time	ton	$I_{C}=2A$ , $I_{B1}=0.4A$ , $I_{B2}=-0.8A$ , $R_{L}=200\Omega$ , $V_{CC}=400V$			1.0	μs
Storage Time	tstg	$I_{C}=2A$ , $I_{B1}=0.4A$ , $I_{B2}=-0.8A$ , $R_{L}=200\Omega$ , $V_{CC}=400V$			3.0	μs
Fall Time	t <sub>f</sub>	$I_{C}=2A$ , $I_{B1}=0.4A$ , $I_{B2}=-0.8A$ , $R_{L}=200\Omega$ , $V_{CC}=400V$			0.7	μs

### Switching Time Test Circuit



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





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