



SANYO Semiconductors

DATA SHEET

2SC4161

NPN Triple Diffused Planar Silicon Transistor

Switching Regulator Applications

Features

- High breakdown voltage, high reliability.
- High-speed switching (t_f : 0.1 μ s typ).
- Wide ASO.
- Adoption of MBIT process.
- Micaless package facilitating mounting.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		500	V
Collector-to-Emitter Voltage	V_{CEO}		400	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		7	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu\text{s}$, duty cycle $\leq 10\%$	14	A
Base Current	I_B		3	A
Collector Dissipation	P_C		2	W
		$T_c=25^\circ\text{C}$	30	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=400\text{V}$, $I_E=0\text{A}$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0\text{A}$			10	μA

Continued on next page.

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2SC4161

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	hFE1	VCE=5V, IC=0.8A	15*		50*	
	hFE2	VCE=5V, IC=4A	10			
	hFE3	VCE=5V, IC=10mA	10			
Gain-Bandwidth Product	fT	VCE=10V, IC=0.8A		20		MHz
Output Capacitance	Cob	VCB=10V, f=1MHz		80		pF
Collector-to-Emitter Saturation Voltage	VCE(sat)	IC=4A, IB=0.8A			0.8	V
Base-to-Emitter Saturation Voltage	VBE(sat)	IC=4A, IB=0.8A			1.5	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	IC=1mA, IE=0A	500			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	IC=5mA, RBE=∞	400			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	IE=1mA, IC=0A	7			V
Collector-to-Emitter Sustain Voltage	VCEX(sus)	IC=3A, IB1=0.3A, IB2=-1.2A, L=1mH, Clamped	400			V
Turn-ON Time	ton	IC=5A, IB1=1A, IB2=-2A, RL=40Ω, VCC=200V			0.5	μs
Storage Time	tstg	IC=5A, IB1=1A, IB2=-2A, RL=40Ω, VCC=200V			2.5	μs
Fall Time	tf	IC=5A, IB1=1A, IB2=-2A, RL=40Ω, VCC=200V			0.3	μs

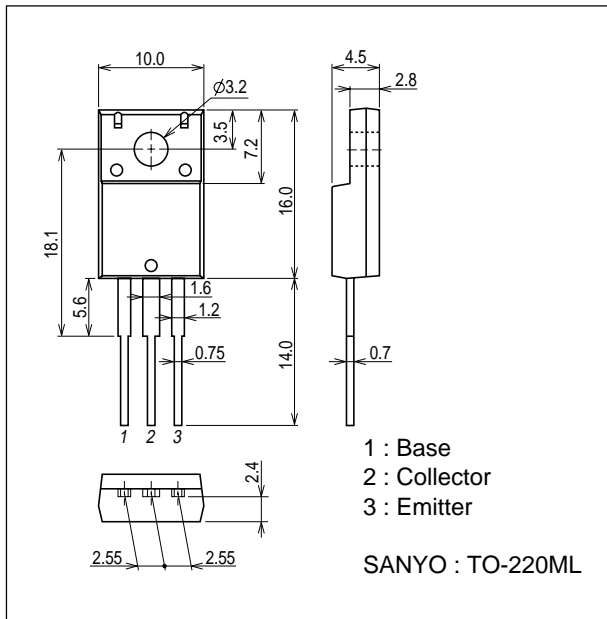
* : The hFE1 of the 2SC4161 is classified as follows. When specifying the hFE1 rank, specify two ranks or more in principle.

Rank	L	M	N
hFE	15 to 30	20 to 40	30 to 50

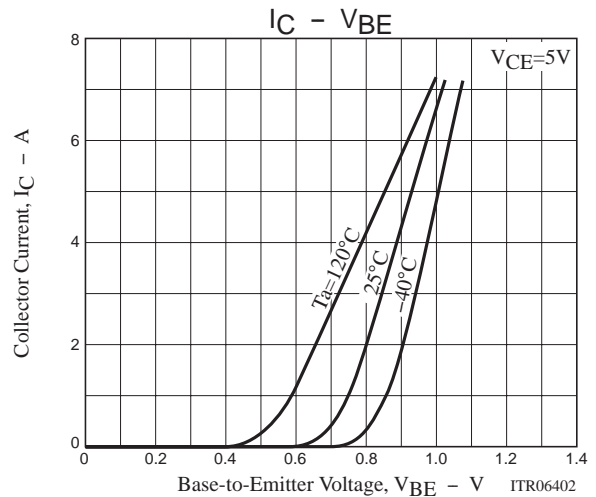
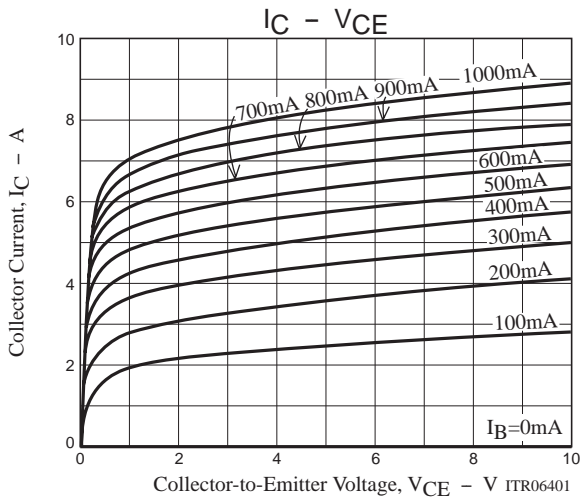
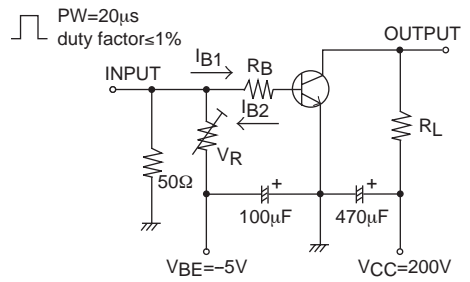
Package Dimensions

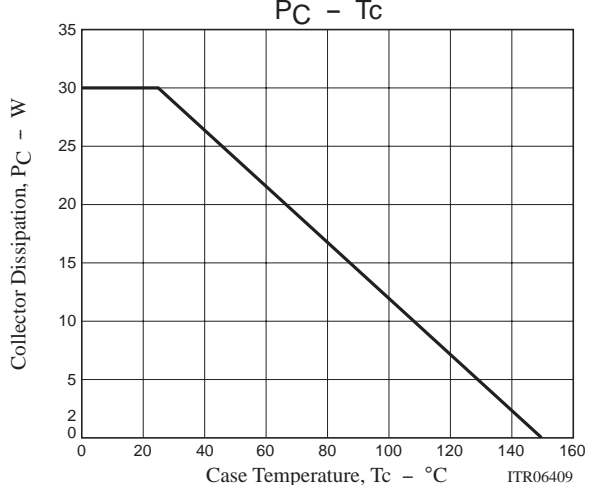
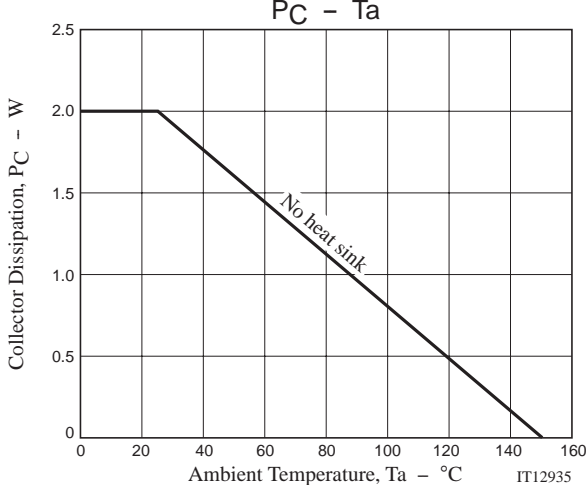
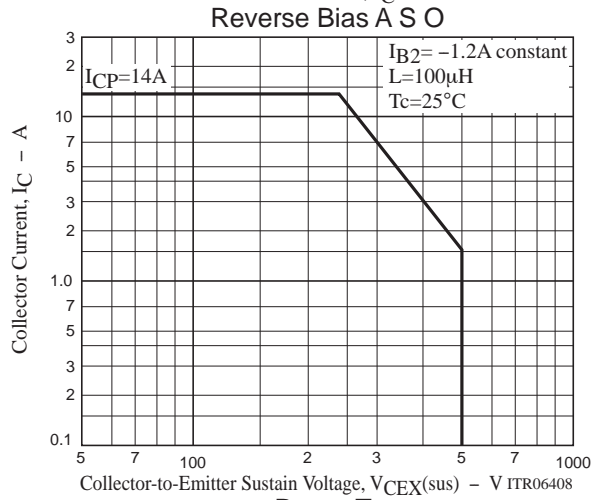
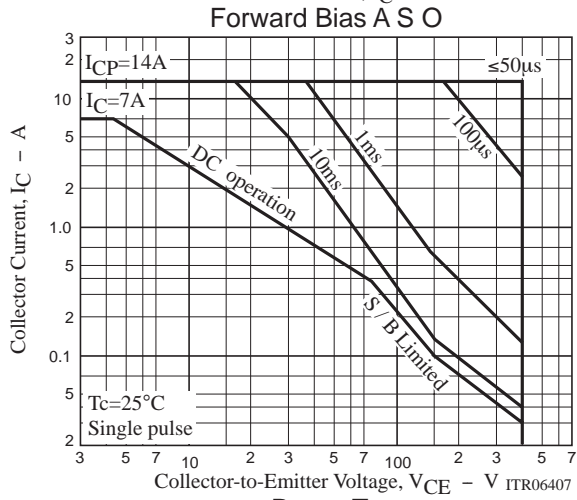
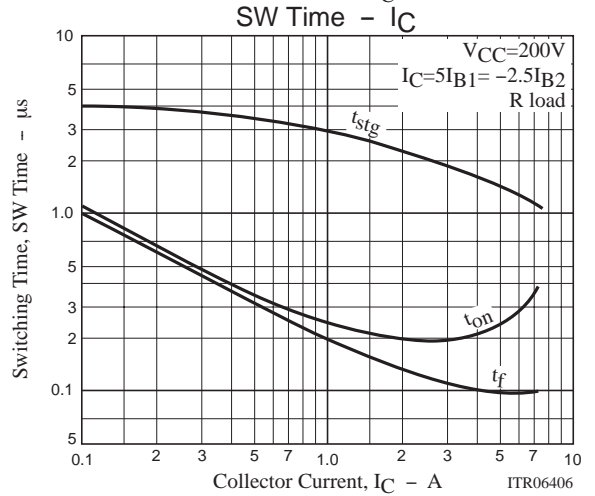
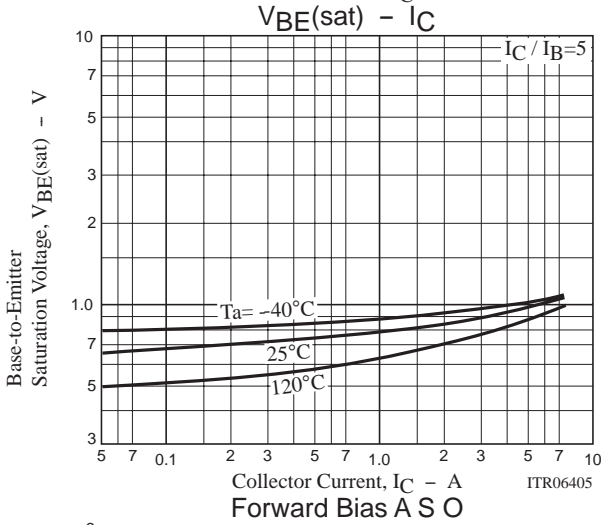
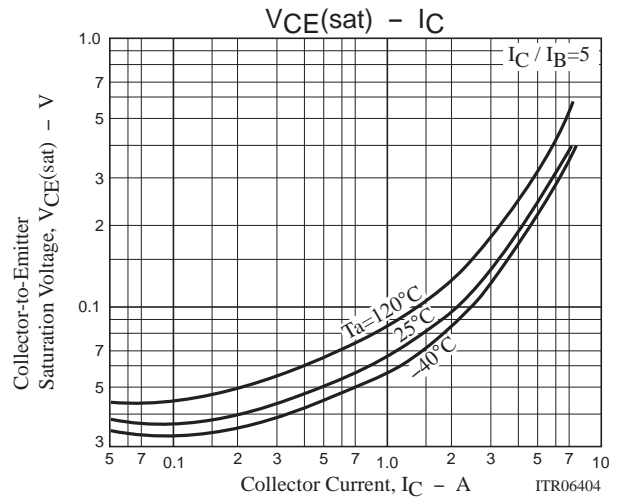
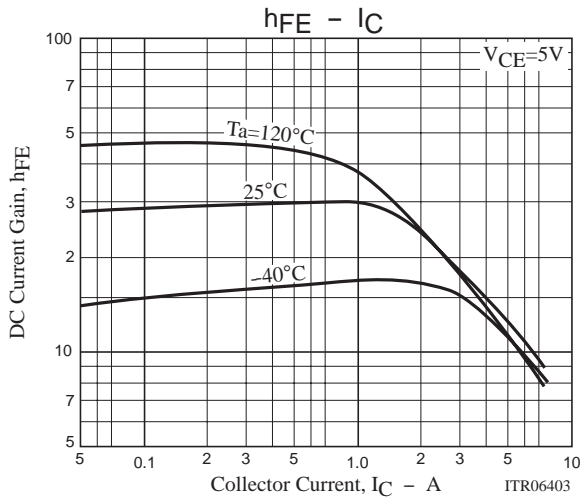
unit : mm (typ)

7508-002



Switching Time Test Circuit





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