Ordering number : ENA0878

SANYO Semiconductors

DATA SHEET

2SC6106 — NPN Triple Diffused Planar Silicon Transistor

Switching Regulator Applications

Features

- High breakdown voltage and high reliability.
- Ultrahigh-speed switching.
- Wide ASO.
- Adoption of MBIT process.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		1000	V
Collector-to-Emitter Voltage	V_{CEO}		500	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		4	A
Collector Current (Pulse)	I_{CP}	PW≤300μs, duty cycle≤10%	8	A
Collector Dissipation	P_C		1	W
		Tc=25°C	30	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	
Collector Cutoff Current	I_{CBO}	V_{CB}=500V, I_E=0A			10	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=5V, I_C=0A			10	μA
DC Current Gain	$h_{FE}1$	V_{CE}=5V, I_C=0.3A	40		80	
	$h_{FE}2$	V_{CE}=5V, I_C=2.0A	8			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=0.3A		18		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		40		pF

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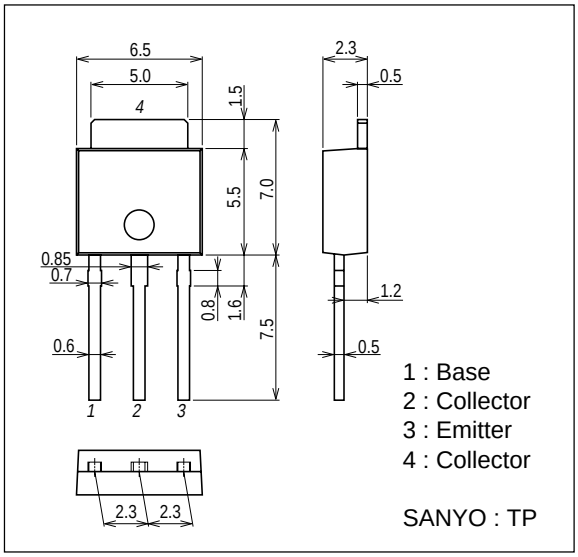
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)$	I_C=1.5A, I_B=0.3A			1.0	V
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=1.5A, I_B=0.3A			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=1mA, I_E=0A	1000			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=5mA, R_{BE}=∞	500			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=1mA, I_C=0A	8			V
Turn-ON Time	t_{on}	V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=2A, R_L=100Ω			0.5	μs
Storage Time	t_{stg}	V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=2A, R_L=100Ω			3.0	μs
Fall Time	t_f	V_{CC}=200V, 5I_{B1}=-2.5I_{B2}=I_C=2A, R_L=100Ω			0.3	μs

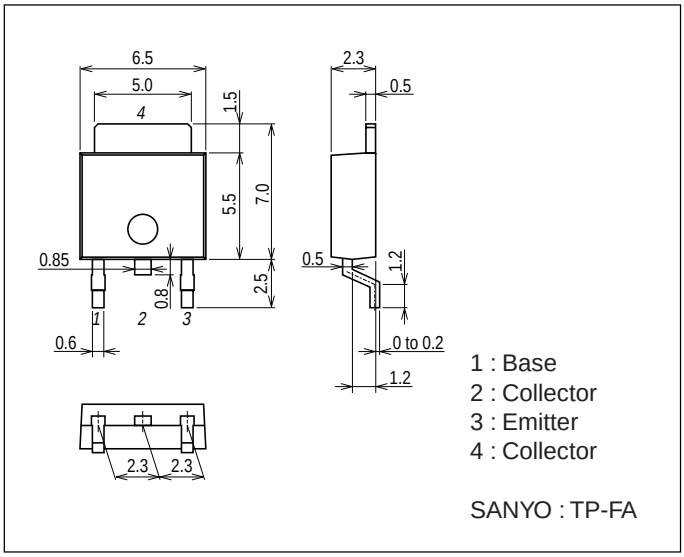
Package Dimensions

unit : mm (typ)
7518-003

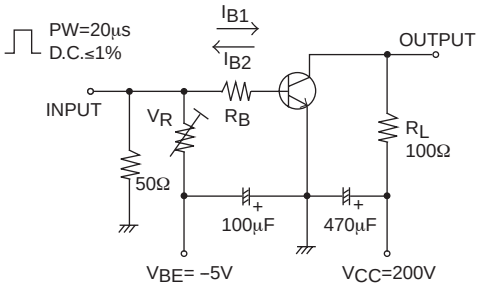


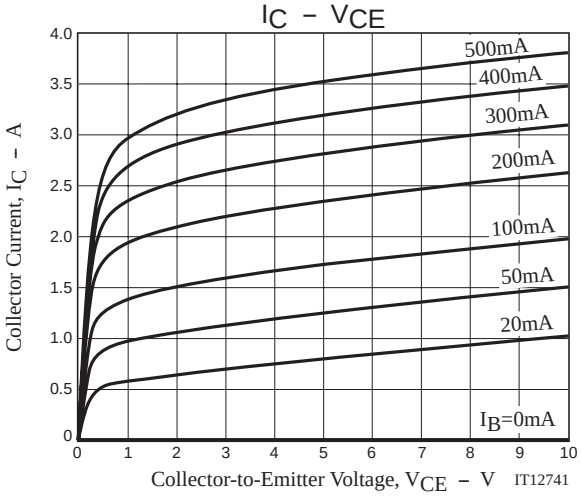
Package Dimensions

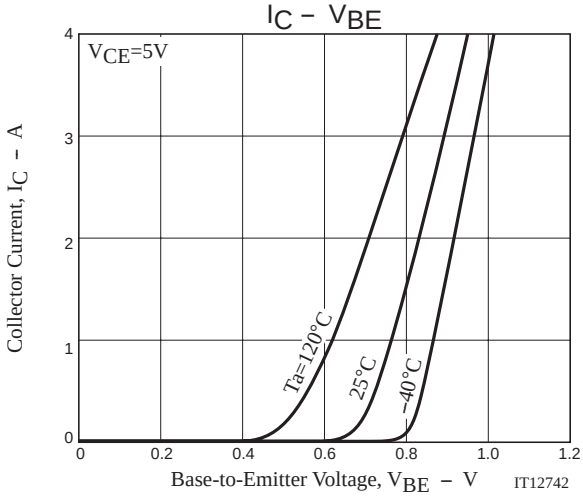
unit : mm (typ)
7003-003

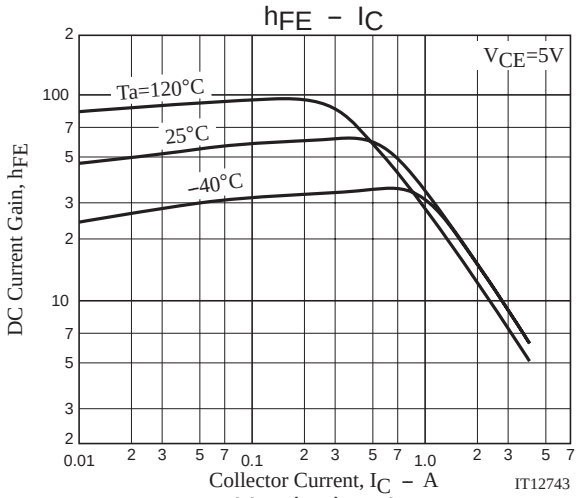


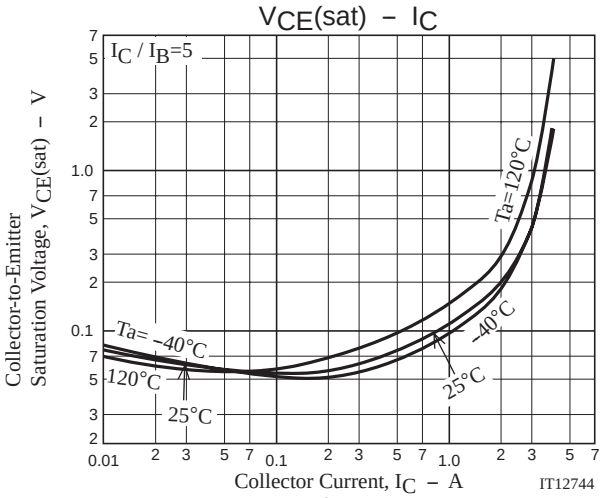
Switching Time Test Circuit

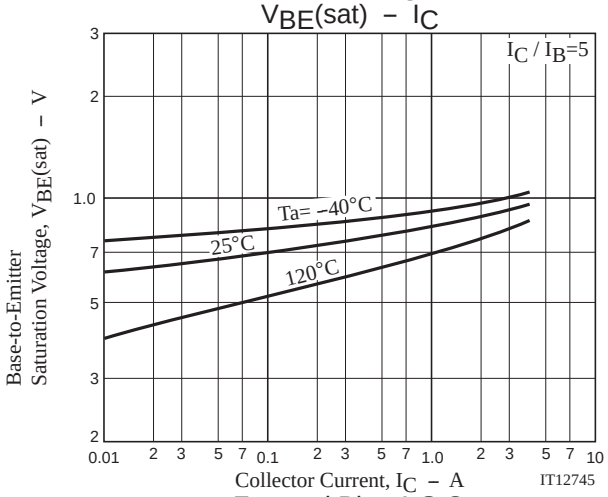


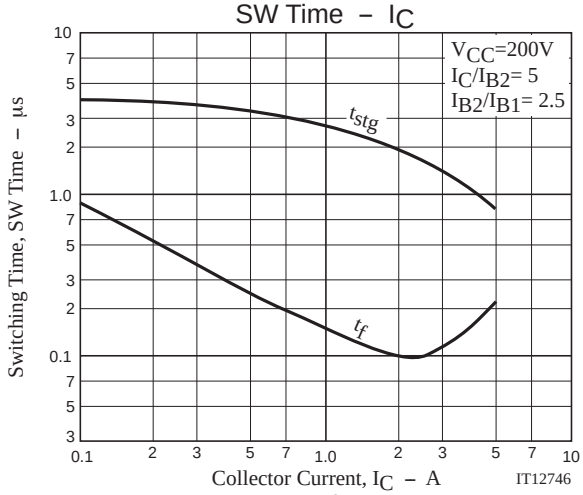


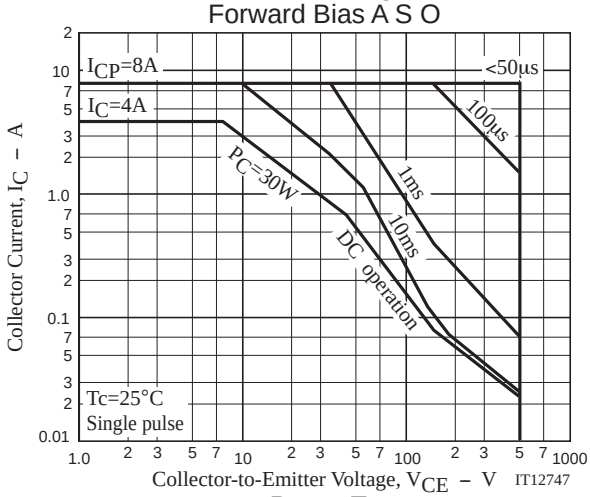


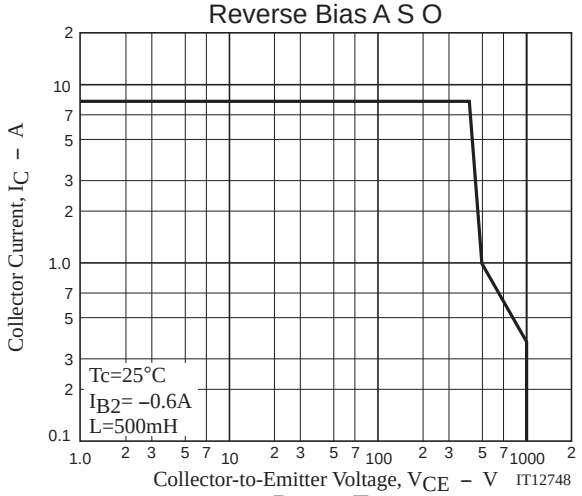

hFE – IC
VCE=5V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
IT12743

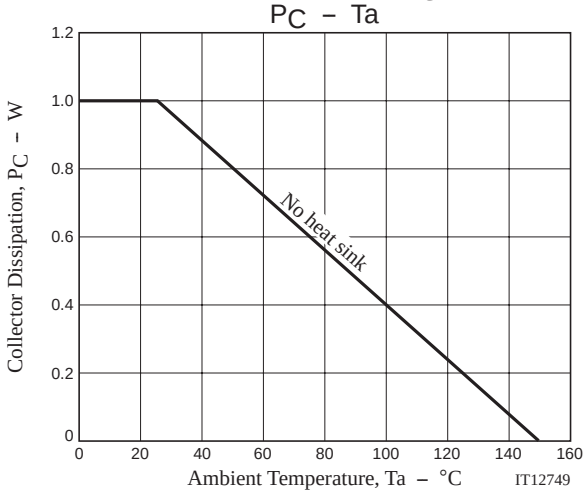

VCE(sat) – IC
IC / IB=5
Ta=120°C
–40°C
Ta= –40°C
120°C
25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT12744

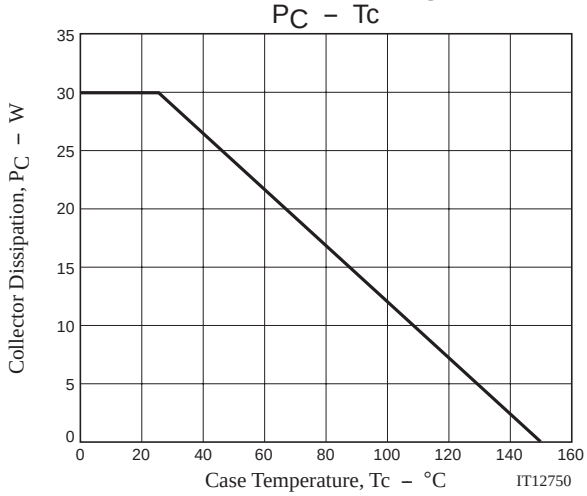

VBE(sat) – IC
IC / IB=5
Ta= –40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT12745


SW Time – IC
VCC=200V
IC/IB2= 5
IB2/IB1= 2.5
tstg
tf
Switching Time, SW Time – µs
Collector Current, IC – A
IT12746


Forward Bias A S O
ICP=8A
IC=4A
<50µs
100µs
1ms
10ms
DC operation
PC=30W
Tc=25°C
Single pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT12747


Reverse Bias A S O
Tc=25°C
IB2= –0.6A
L=500mH
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT12748


PC – Ta
No heat sink
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT12749


PC – Tc
Collector Dissipation, PC – W
Case Temperature, Tc – °C
IT12750