Ordering number : EN1968A

SANYO

No.1968A

2SC3749

NPN Triple Diffused Planar Silicon Transistor

500V/3A Switching Regulator Applications

Features

- High breakdown voltage and high reliability
- Fast switching speed
- Wide ASO
- Adoption of MBIT process
- Micaless package facilitating mounting

Absolute Maximum Ratings at Ta=25°C

				unit
Collector-to-Base Voltage	V_{CBO}		800	V
Collector-to-Emitter Voltage	V_{CEO}		500	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		3	A
Collector Current (Pulse)	I_{CP}	PW≦300μs, Duty cycle ≦10%	6	A
Base Current	I_B		1	A
Collector Dissipation	P_C	Tc=25°C	25	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

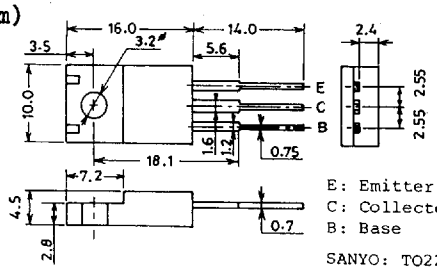
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=500V, I_E=0			10	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=5V, I_C=0			10	μA
DC Current Gain	$h_{FE(1)}$	V_{CE}=5V, I_C=0.3A	15*		50*	
	$f_{FE(2)}$	V_{CE}=5V, I_C=1.5A	8			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=0.3A		18		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		50		pF
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=0	800			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=0	7			V

Continued on next page.

*: The $h_{FE(1)}$ of the 2SC3749 is classified as follows. When specifying the $h_{FE(1)}$ rank, specify two ranks or more in principle.

15 L 30	20 M 40	30 N 50

Package Dimensions 2041
(unit:mm)



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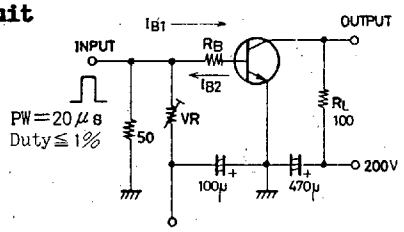
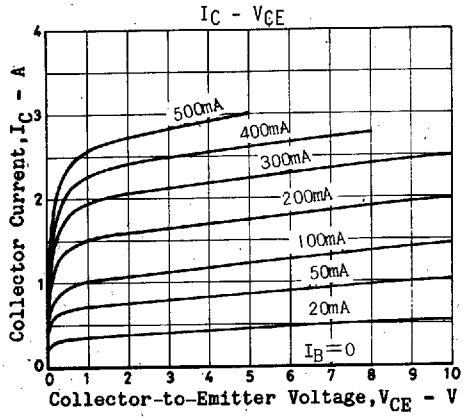
Continued from preceding page.

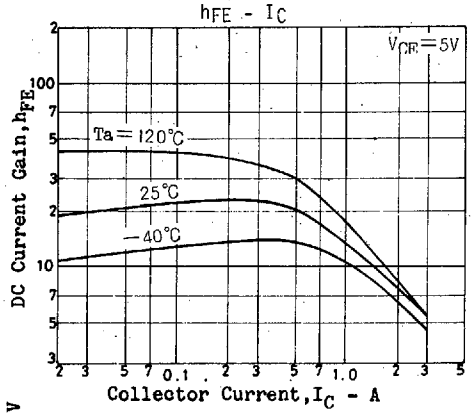
			min	typ	max	unit
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	I_C=1.5A, I_{B1}=-I_{B2}=0.6A, L=2mH, clamped	500			V
Turn-on Time	t_{on}	V_{CC}=200V, $5I_{B1}$=-2.5I_{B2}=I_C=2A, R_L=100Ω			0.5	μs
Storage Time	t_{stg}				3.0	μs
Fall Time	t_f				0.3	μs

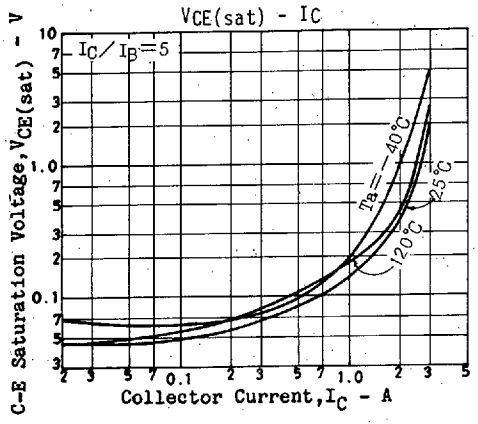
Switching Time Test Circuit

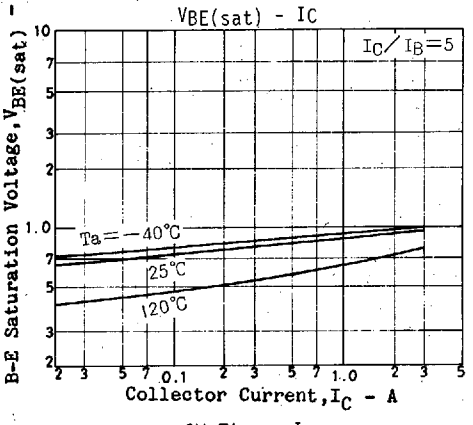


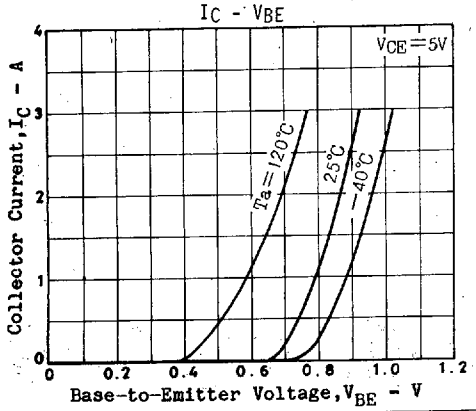
Unit (Resistance : Ω, Capacitance : F)

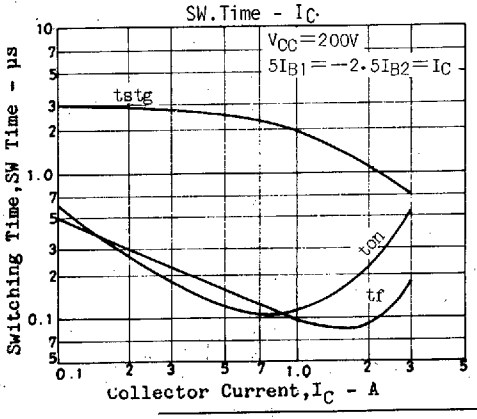


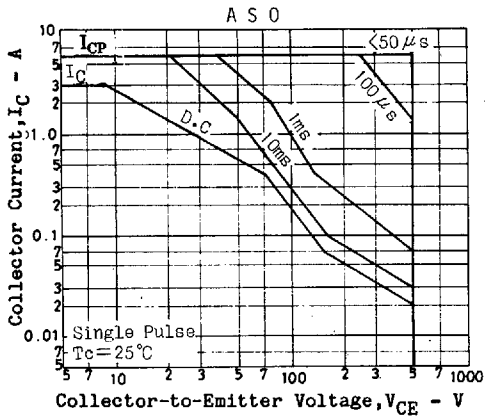


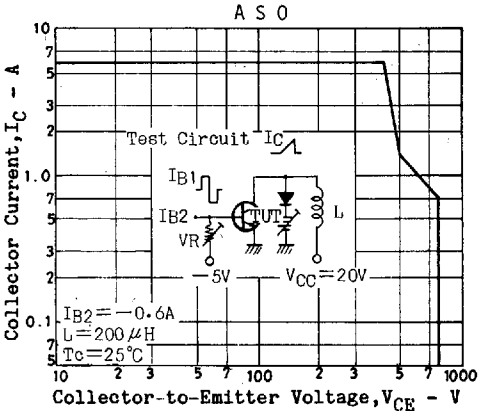


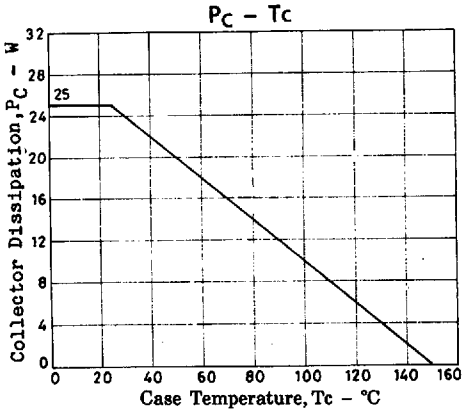







A S O
Collector Current, I_C - A
I_{CP}
I_C
50 μs
100 μs
1ms
10ms
D.C
Single Pulse
Tc=25°C
Collector-to-Emitter Voltage, V_{CE} - V


A S O
Collector Current, I_C - A
Test Circuit I_C
I_{B1}
I_{B2}
VR
TUT
L
-5V
V_{CC}=20V
I_{B2}=-0.6A
L=200 μH
Tc=25°C
Collector-to-Emitter Voltage, V_{CE} - V


P_C - Tc
Collector Dissipation, P_C - W
25
Case Temperature, Tc - °C