Ordering number : ENA0899

SANYO Semiconductors
DATA SHEET

2SC6083 — NPN Triple Diffused Planar Silicon Transistor
Switching Regulator Applications

Features

- High breakdown voltage.
- High-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}		700	V
Collector-to-Emitter Voltage	V_{CEO}		350	V
Emitter-to-Base Voltage	V_{EBO}		8	V
Collector Current	I_C		1	A
Collector Current (Pulse)	I_{CP}	PW≤300μs, duty cycle≤10%	2	A
Base Current	I_B		0.5	A
Collector Dissipation	P_C		0.6	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}=350V, 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=0.1A	100		200	
	$h_{FE}2$	V_{CE}=5V, I_C=0.5A	10			
	$h_{FE}3$	V_{CE}=5V, I_C=1mA	60			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=0.1A		20		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		8		pF

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SANYO Semiconductor Co., Ltd.
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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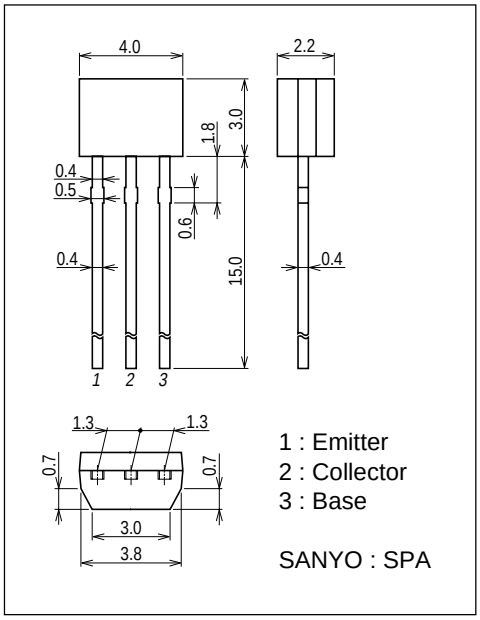
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)$	I_C=0.5A, I_B=0.1A			0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=0.5A, I_B=0.1A			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=1mA, I_E=0A	700			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=5mA, R_{BE}=∞	350			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=1mA, I_C=0A	8			V
Turn-ON Time	t_{on}	I_C=0.5A, I_{B1}=0.05A, I_{B2}=−0.5A, R_L=400Ω, V_{CC}=200V			1.0	μs
Storage Time	t_{stg}	I_C=0.5A, I_{B1}=0.05A, I_{B2}=−0.5A, R_L=400Ω, V_{CC}=200V			2.5	μs
Fall Time	t_f	I_C=0.5A, I_{B1}=0.05A, I_{B2}=−0.5A, R_L=400Ω, V_{CC}=200V			0.3	μs

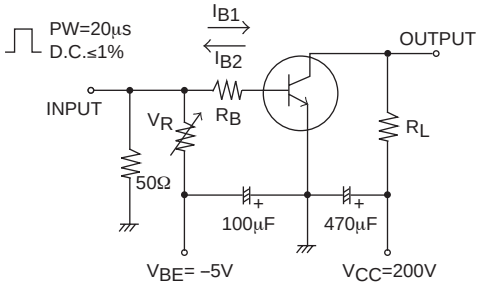
Package Dimensions

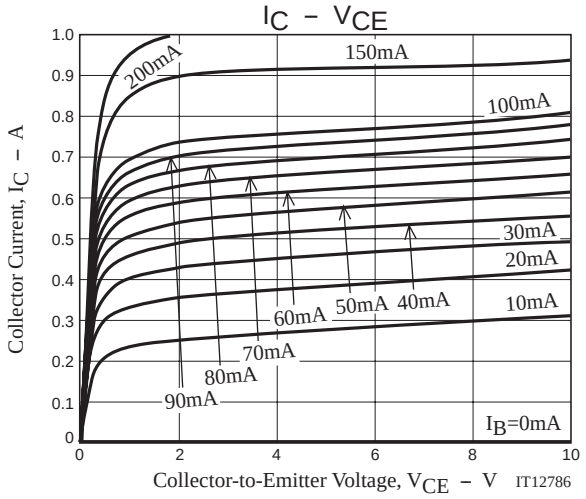
unit : mm (typ)

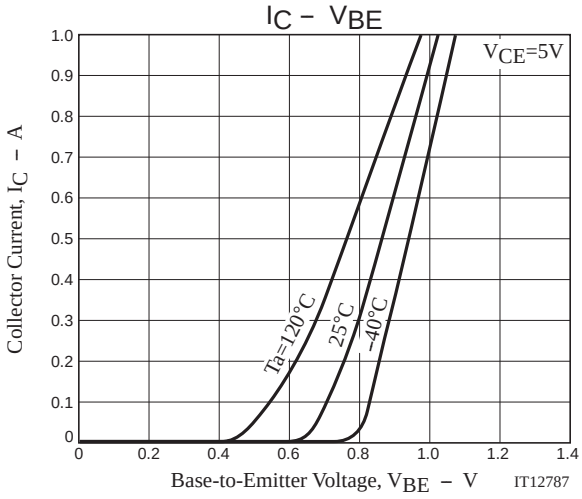
7524-004

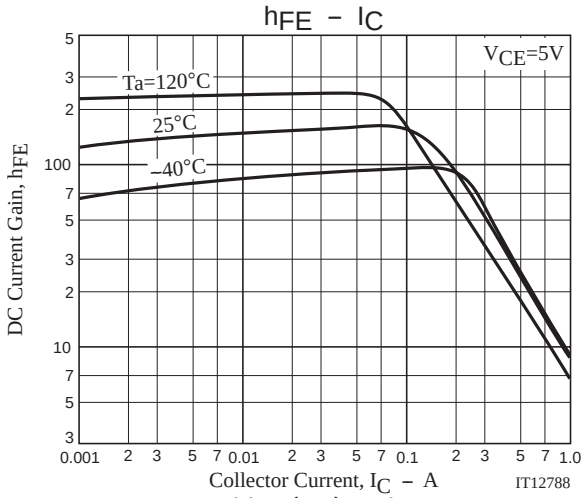


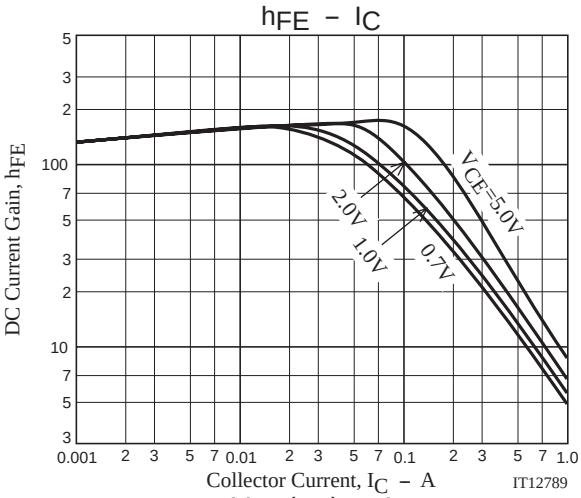
Switching Time Test Circuit

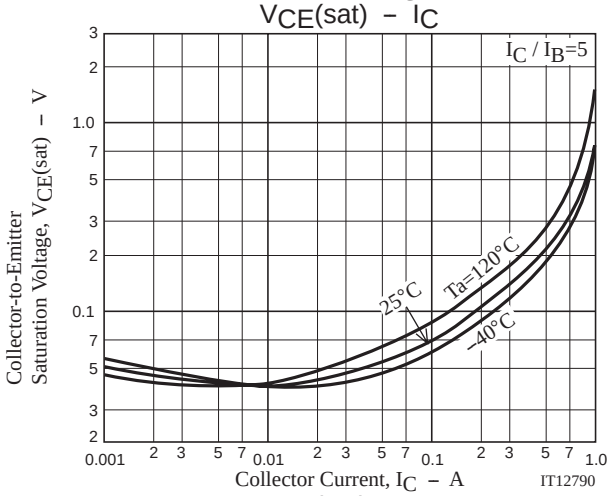


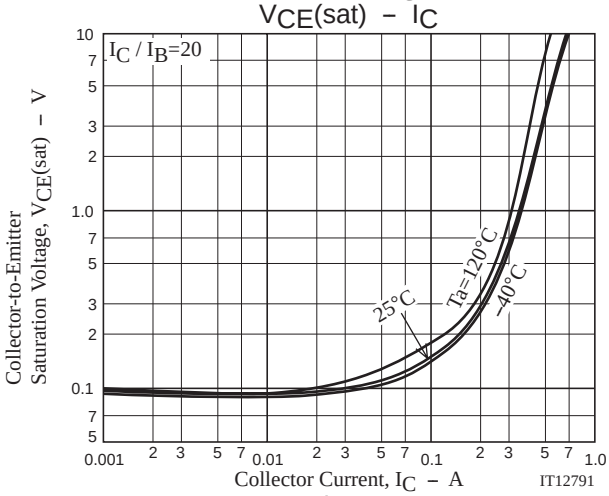


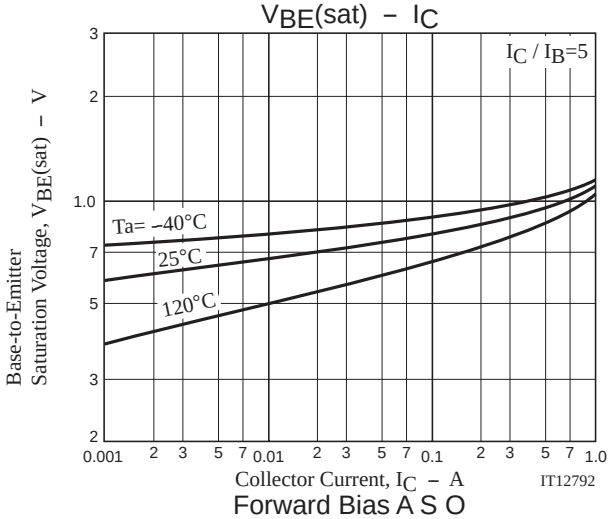


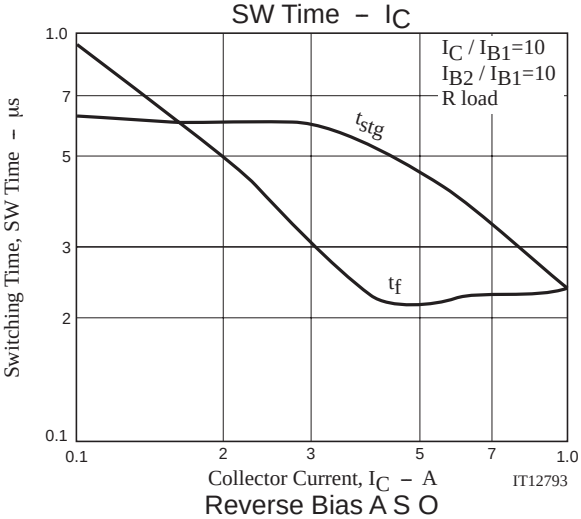

hFE – IC
VCE=5V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
IT12788

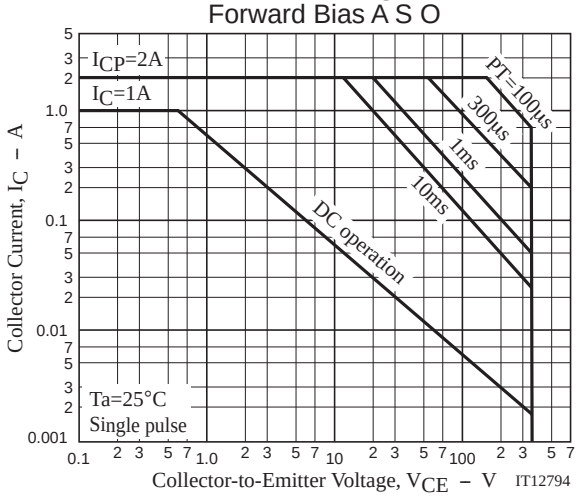

hFE – IC
VCE=5.0V
2.0V
1.0V
0.7V
DC Current Gain, hFE
Collector Current, IC – A
IT12789

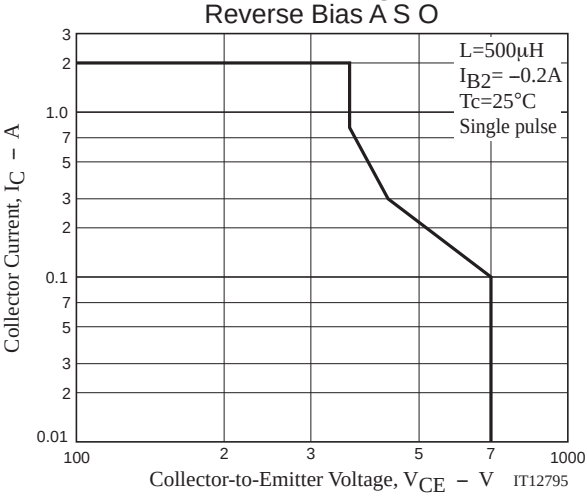

VCE(sat) – IC
IC / IB=5
25°C
Ta=120°C
–40°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT12790


VCE(sat) – IC
IC / IB=20
25°C
Ta=120°C
–40°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT12791


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
IT12792


SW Time – IC
IC / IB1=10
IB2 / IB1=10
R load
tstg
tf
Switching Time, SW Time – µs
Collector Current, IC – A
IT12793


Forward Bias A S O
ICP=2A
IC=1A
PT=100µs
300µs
1ms
10ms
DC operation
Ta=25°C
Single pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT12794


Reverse Bias A S O
L=500µH
IB2= –0.2A
Tc=25°C
Single pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT12795