Ordering number:EN1579D

NPN Triple Diffused Planar Silicon Transistor

2SC3456

800V/1.5A Switching Regulator Applications

Features

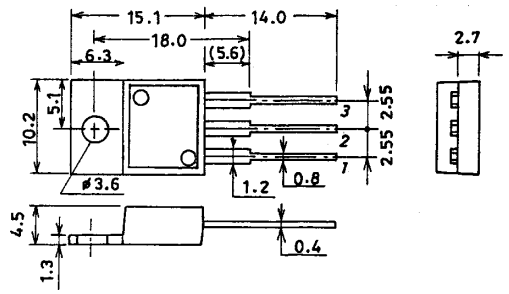
- High breakdown voltage and high reliability.
- Fast switching speed (t_f : 0.1μs typ).
- Wide ASO.
- Adoption of MBIT process.

Package Dimensions

unit:mm

2010C

[2SC3456]



JEDEC : TO-220AB
EIAJ : SC-46

1 : Base
2 : Collector
3 : Emitter

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		1100	V
Collector-to-Emitter Voltage	V_{CEO}		800	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		1.5	A
Collector Current (Pulse)	I_{CP}	PW≤300μs, Duty Cycle≤10%	5	A
Base Current	I_B		0.8	A
Collector Dissipation	P_C	Tc=25˚C	40	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}=800V, 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=0.1A	10*		40*	
	$h_{FE}2$	V_{CE}=5V, I_C=0.5A	8			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=0.1A		15		MHz
Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz		35		pF

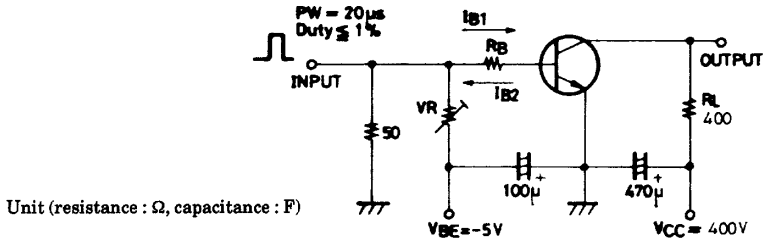
* : The $h_{FE}1$ of the 2SC3456 is classified as follows. When specifying the $h_{FE}1$ rank, specify two ranks or more in principle.

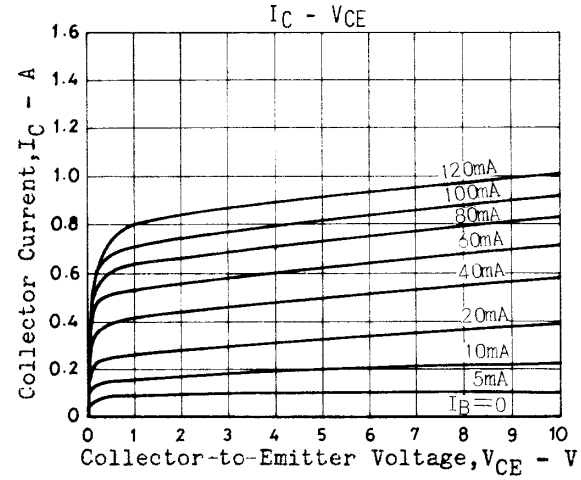
10 K 20	15 L 30	20 M 40

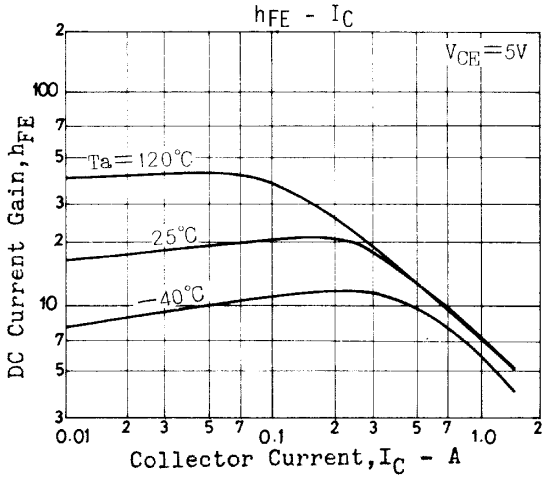
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

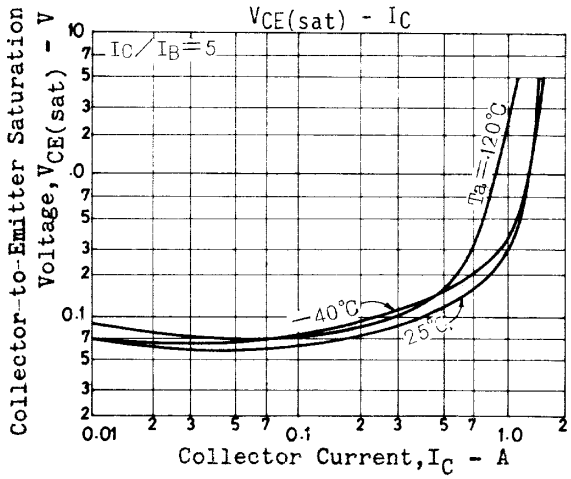
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=0.75A, I_B=0.15A			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=0.75A, I_B=0.15A			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=1mA, I_E=0	1100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=5mA, R_{BE}=∞	800			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=1mA, I_C=0	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	I_C=0.75A, I_{B1}=–I_{B2}=0.15A, L=5mH, clamped	800			V
Turn-ON Time	t_{on}	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=1A, R_L=400Ω			0.5	μs
Storage Time	t_{stg}	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=1A, R_L=400Ω			3.0	μs
Fall Time	t_f	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=1A, R_L=400Ω			0.3	μs

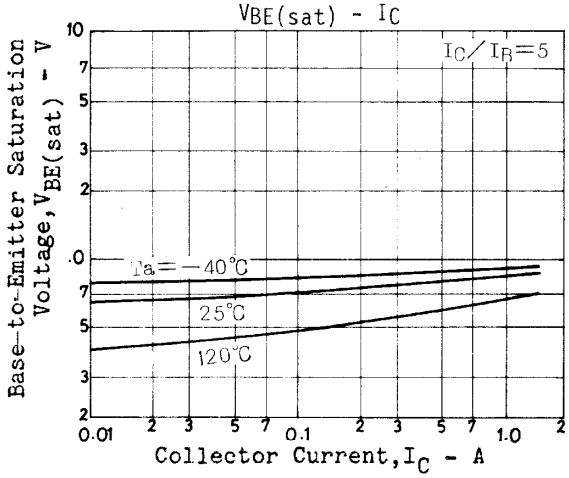
Switching Time Test Circuit

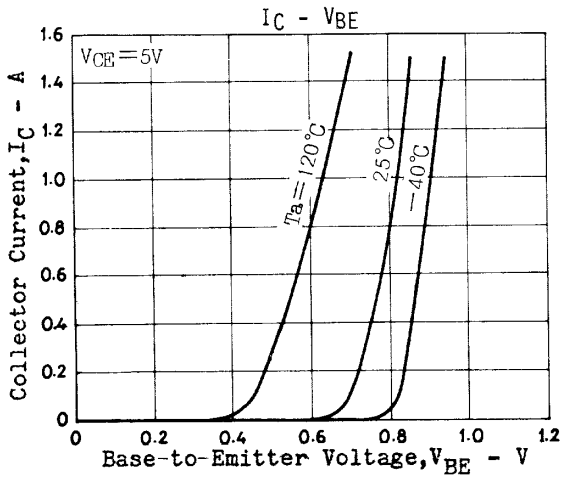


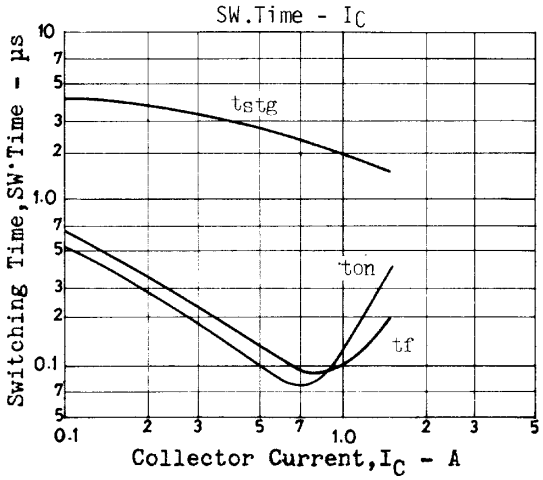


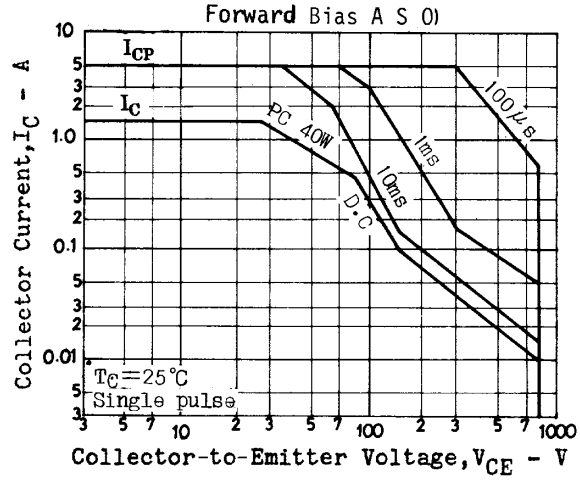


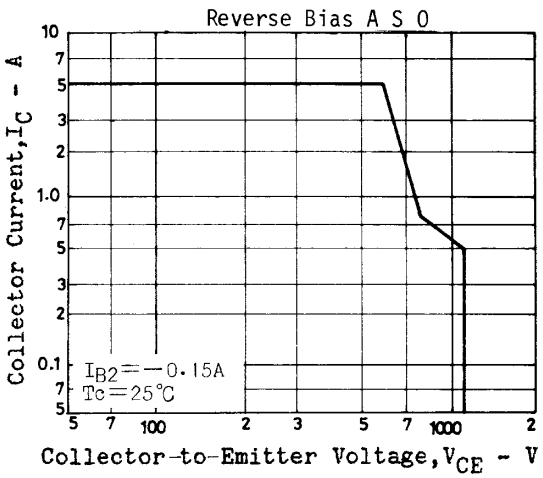


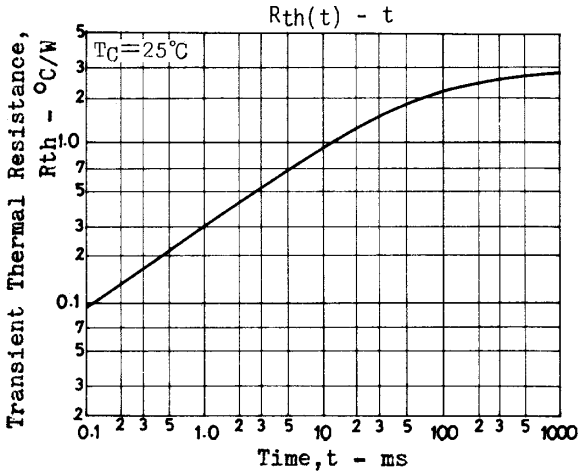


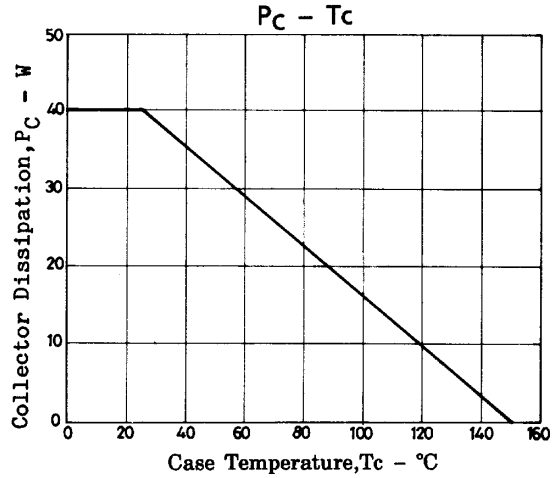

IC - VBE
VCE=5V
Ta=120°C
25°C
−40°C
Collector Current,IC - A
Base-to-Emitter Voltage,VBE - V


SW.Time - IC
tstg
ton
tf
Switching Time,SW·Time - μs
Collector Current,IC - A


Forward Bias A S O
ICP
IC
PC 40W
100μs
1ms
10ms
D.C
TC=25°C
Single pulse
Collector Current,IC - A
Collector-to-Emitter Voltage,VCE - V


Reverse Bias A S O
IB2=−0.15A
Tc=25°C
Collector Current,IC - A
Collector-to-Emitter Voltage,VCE - V


Rth(t) - t
TC=25°C
Transient Thermal Resistance, Rth - °C/W
Time,t - ms


PC - Tc
Collector Dissipation,PC - W
Case Temperature,Tc - °C