Ordering number:ENN1597C

NPN Triple Diffused Planar Silicon Transistor

2SC3552

800V/12A Switching Regulator Applications

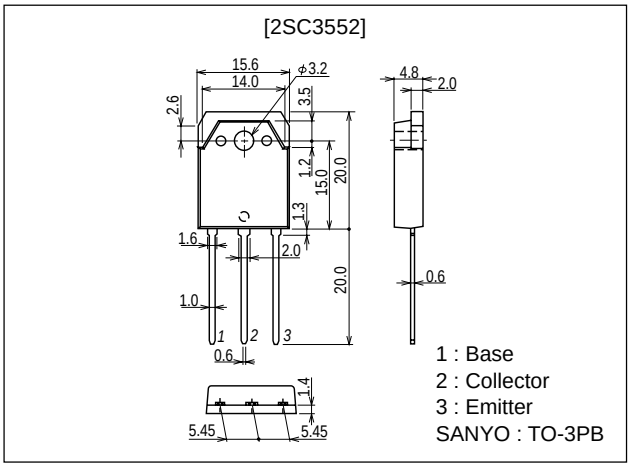
Features

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

Package Dimensions

unit:mm

2022A



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		12	A
Collector Current (Pulse)	I_{CP}	PW≤300μs, Duty Cycle≤10%	30	A
Base Current	I_B		6	A
Collector Dissipation	P_C	Tc=25˚C	150	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=0.8A	10*		40*	
	$h_{FE}2$	V_{CE}=5V, I_C=4A	8			

Continued on next page.

* : The $h_{FE}1$ of the 2SC3552 is classified as follows. When specifying the $h_{FE}1$ rank, specify two ranks or more in principle.

Rank	K	L	M
h_{FE}	10 to 20	15 to 30	20 to 40

SANYO Electric Co.,Ltd. Semiconductor Company

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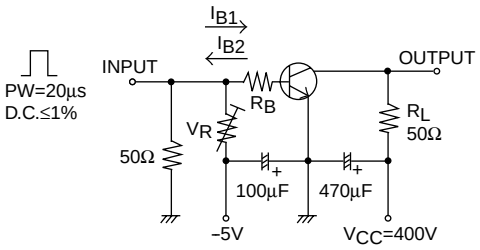
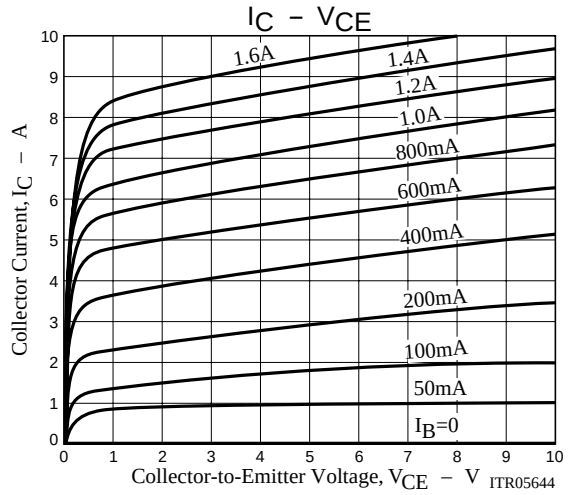
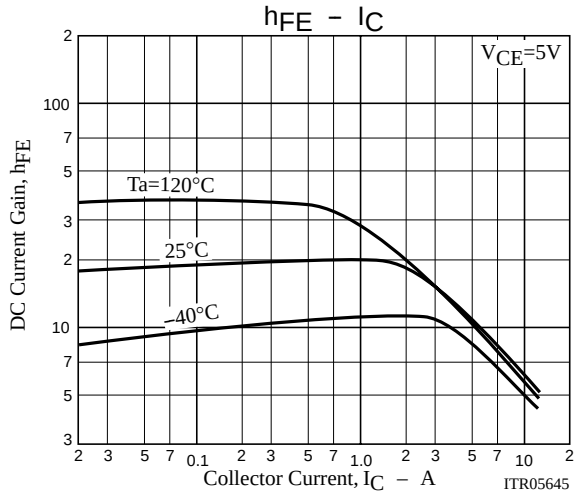
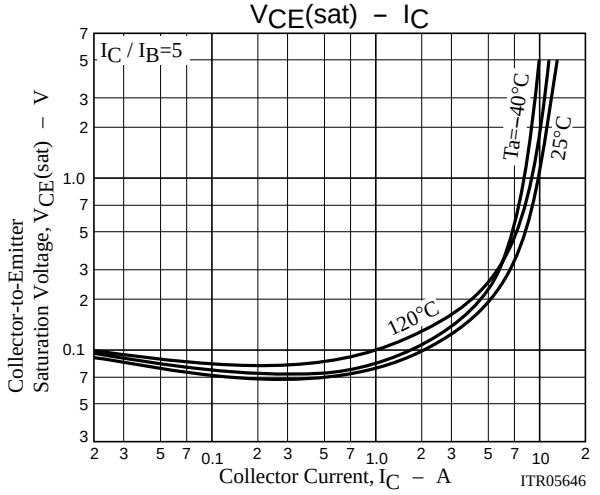
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=0.8A		15		MHz
Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz		215		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=6A, I_B=1.2A			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=6A, I_B=1.2A			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=6A, I_{B1}=–I_{B2}=1.2A, L=500μH, Clamped	800			V
Turn-ON Time	t_{on}	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=8A, R_L=500Ω			0.5	μs
Storage Time	t_{stg}	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=8A, R_L=500Ω			3.0	μs
Fall Time	t_f	V_{CC}=400V, 5I_{B1}=–2.5I_{B2}=I_C=8A, R_L=500Ω			0.3	μs

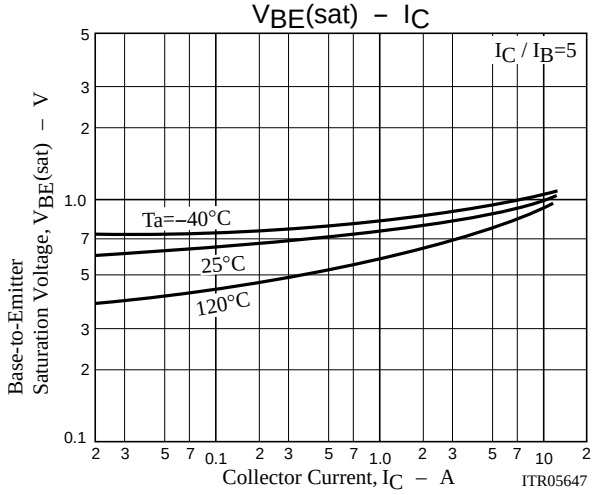
Switching Time Test Circuit



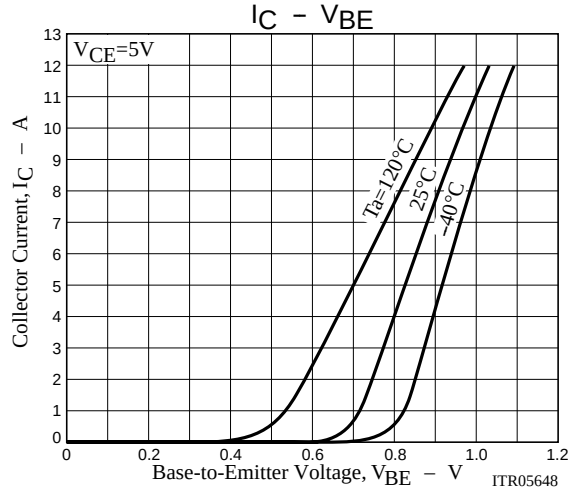




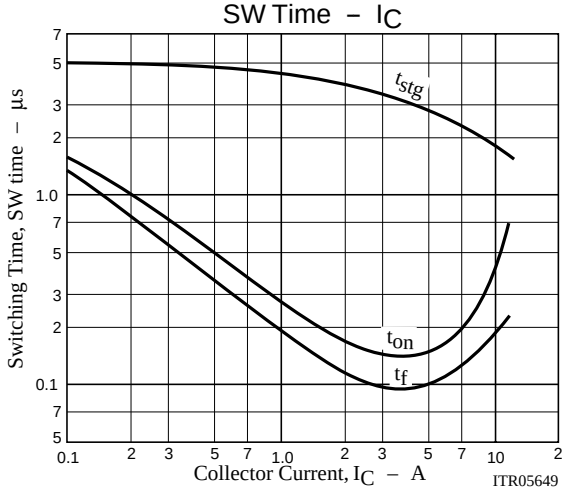




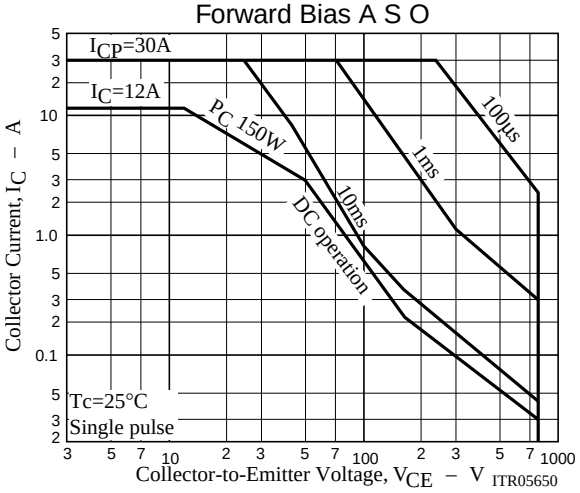
I_C – V_{BE}



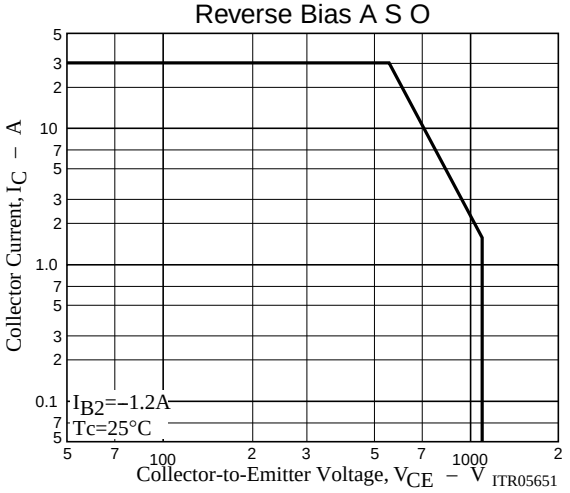
SW Time – I_C



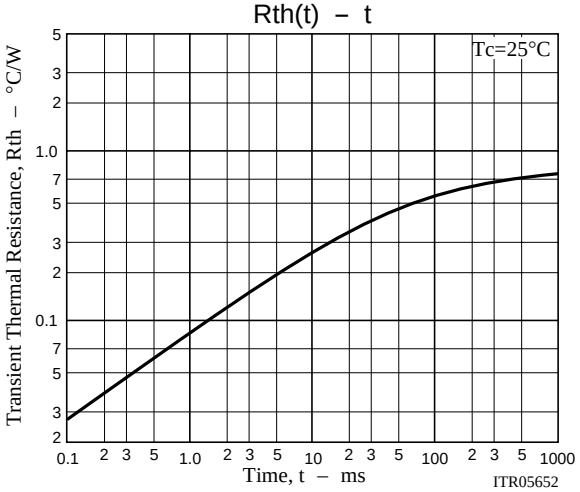
Forward Bias A S O



Reverse Bias A S O



Rth(t) – t



P_C – Ta