Ordering number : EN9055

SANYO Semiconductors
DATA SHEET

TT2042 — NPN Triple Diffused Planar Silicon Darlington Transistor
Driver Applications

Application

- Suitable for use in control motor drivers, printer hammer drivers, relay drivers, audio output and constant-voltage regulators.

Features

- High DC current gain.
- Wide ASO.
- Low saturation voltage.
- Adoption of MBIT process.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		180	V
Collector-to-Emitter Voltage	V_{CEO}		160	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		10	A
Collector Current (Pulse)	I_{CP}		16	A
Collector Dissipation	P_C		2.5	W
		Tc=25°C	110	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

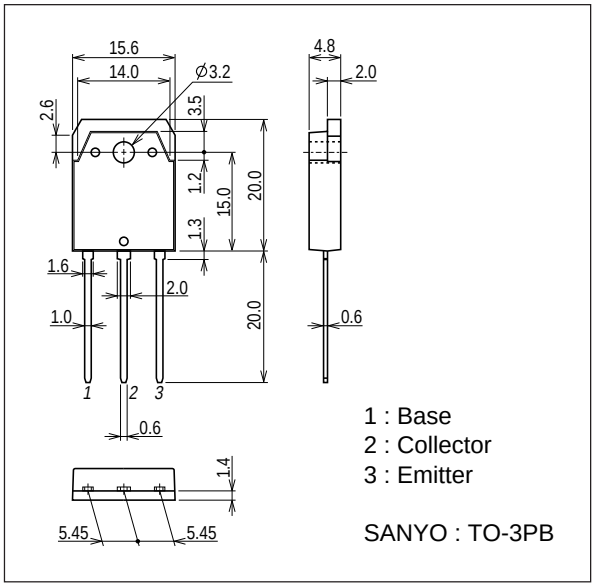
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=180V, I_E=0A			0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=6V, I_C=0A			10	mA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=6.5A	5000			
Gain-Bandwidth Product	f_T	V_{CE}=5V, I_C=6.5A		15		MHz
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=5.5A, I_B=11mA			1.5	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=5.5A, I_B=11mA			2.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=1mA, I_E=0A	180			V
Collector Sustain Voltage	$V_{CEO(SUS)}$	I_C=100mA, I_B=0A	160			V
Turn-ON Time	t_{on}	See specified Test Circuit.		0.9		μs
Storage Time	t_{stg}	See specified Test Circuit.		8.0		μs
Fall Time	t_f	See specified Test Circuit.		3.0		μs

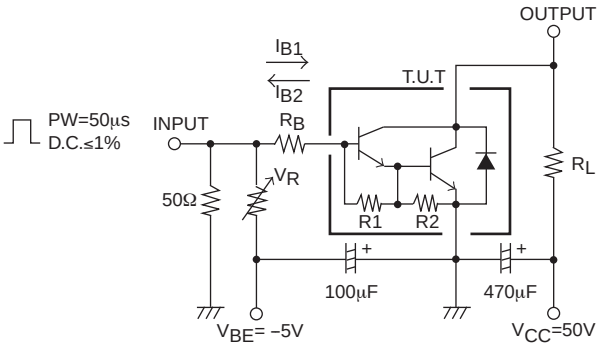
Package Dimensions

unit : mm (typ)

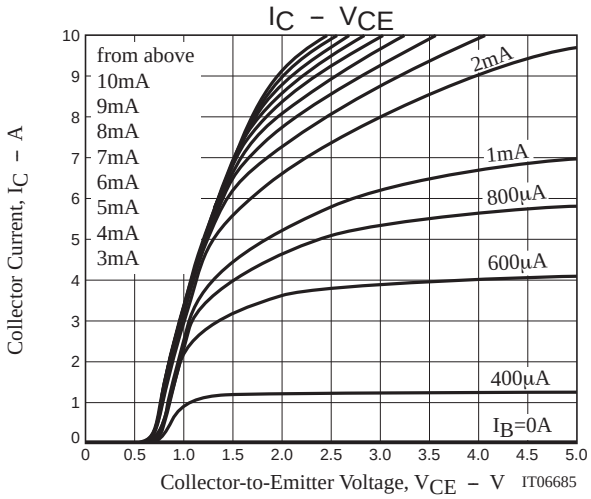
7503-003

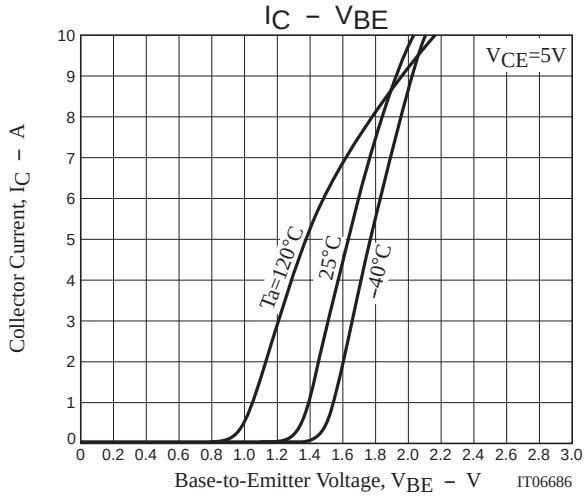


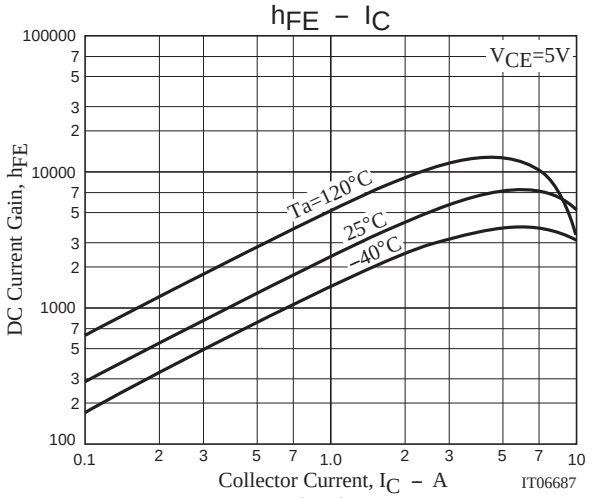
Switching Time Test Circuit

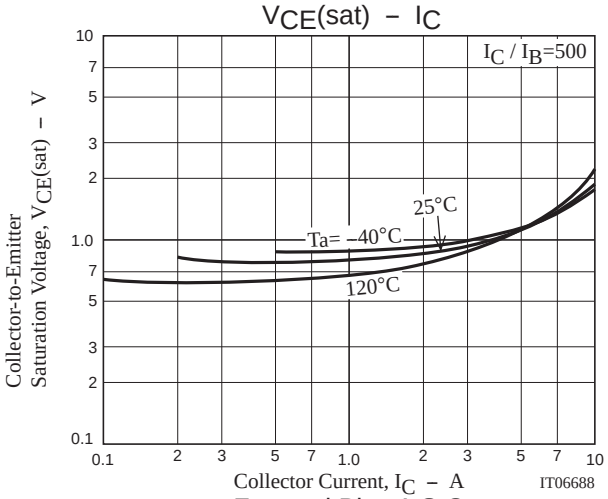


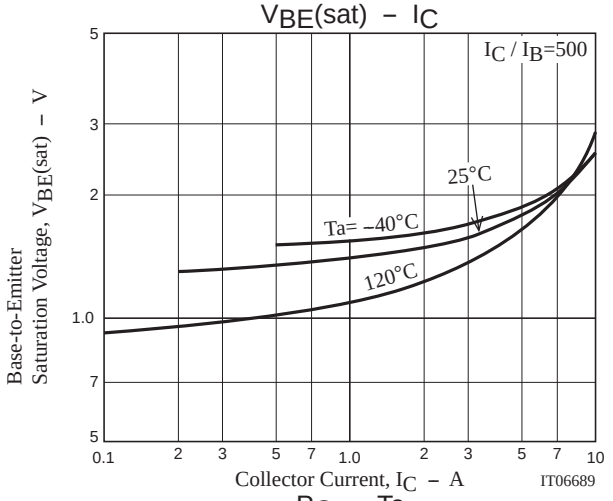
I_C=500I_{B1}=500I_{B2}=6.5A

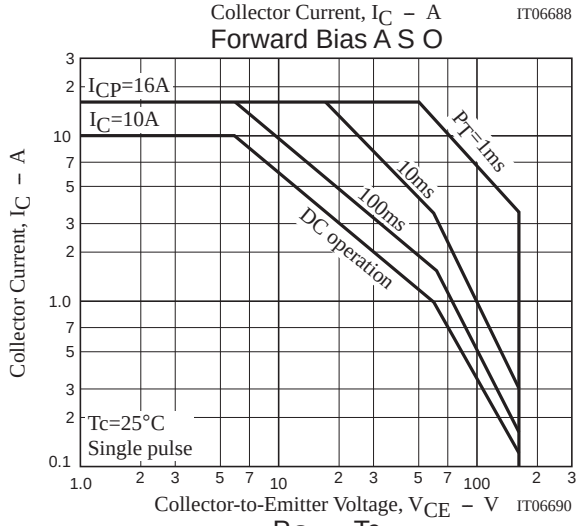


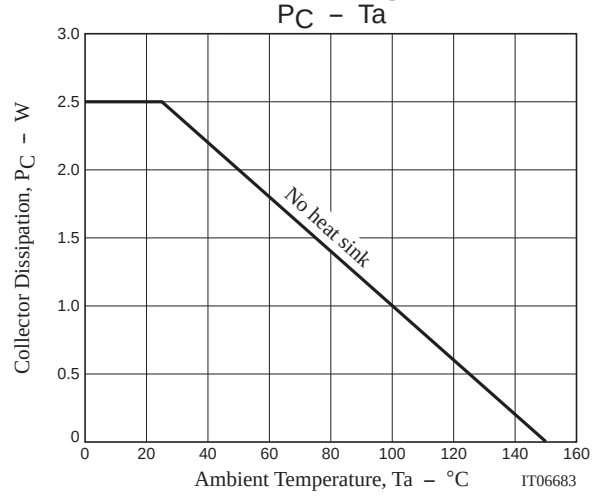


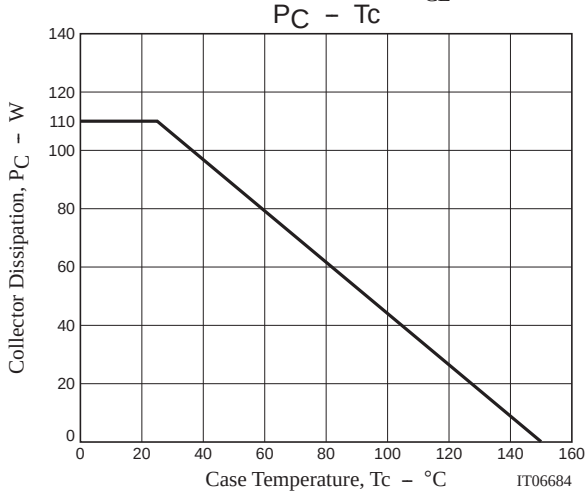

hFE – IC
VCE=5V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
IT06687


VCE(sat) – IC
IC / IB=500
25°C
Ta= –40°C
120°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT06688


VBE(sat) – IC
IC / IB=500
25°C
Ta= –40°C
120°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT06689


Forward Bias A S O
ICP=16A
IC=10A
PT=1ms
10ms
100ms
DC operation
Tc=25°C
Single pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT06690


PC – Ta
No heat sink
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT06683


PC – Tc
Collector Dissipation, PC – W
Case Temperature, Tc – °C
IT06684