



SANYO Semiconductors

DATA SHEET

2SC6144 — NPN Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers.

Features

- Adoption of MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		60	V
Collector-to-Emitter Voltage	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		10	A
Collector Current (Pulse)	I_{CP}		13	A
Base Current	I_B		2	A
Collector Dissipation	P_C		2	W
		$T_c=25^\circ\text{C}$	25	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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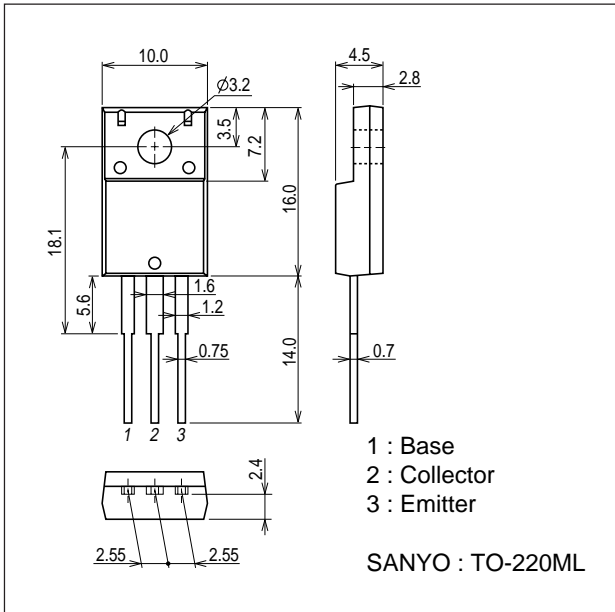
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=40V, I_E=0A$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V, I_C=0A$			10	μA
DC Current Gain	h_{FE}	$V_{CE}=2V, I_C=270mA$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=3A$		330		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=6A, I_B=300mA$		180	360	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=6A, I_B=300mA$			1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0A$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0A$	5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		62		ns
Storage Time	t_{stg}	See specified Test Circuit.		350		ns
Fall Time	t_f	See specified Test Circuit.		25		ns

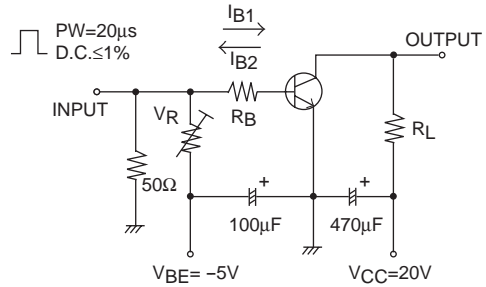
Package Dimensions

unit : mm (typ)

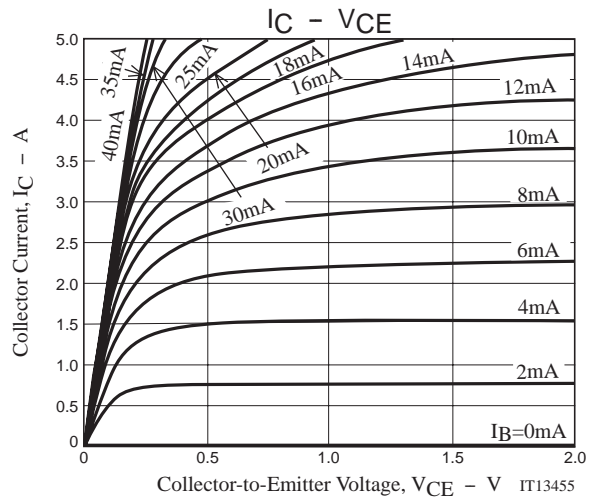
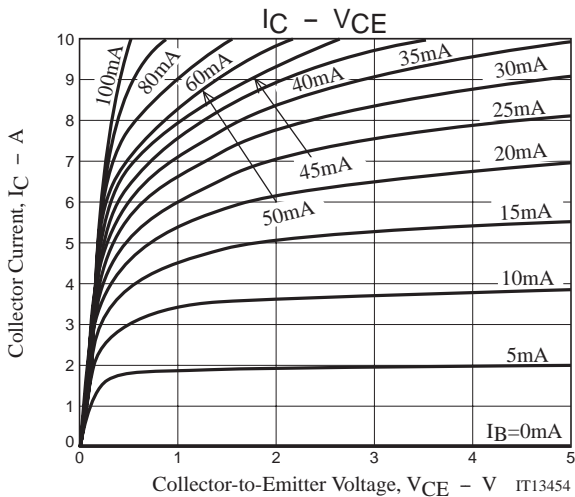
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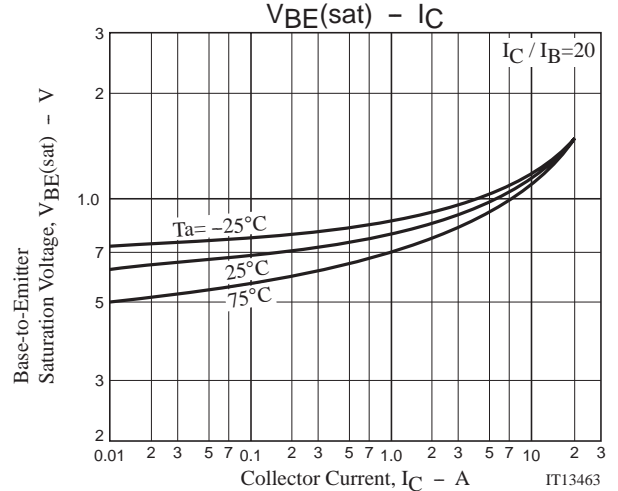
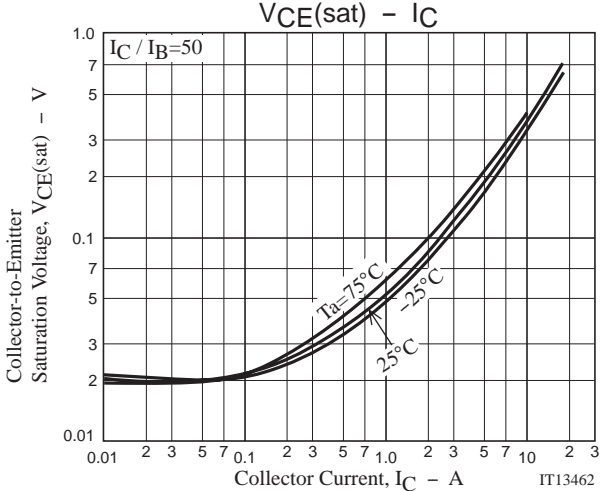
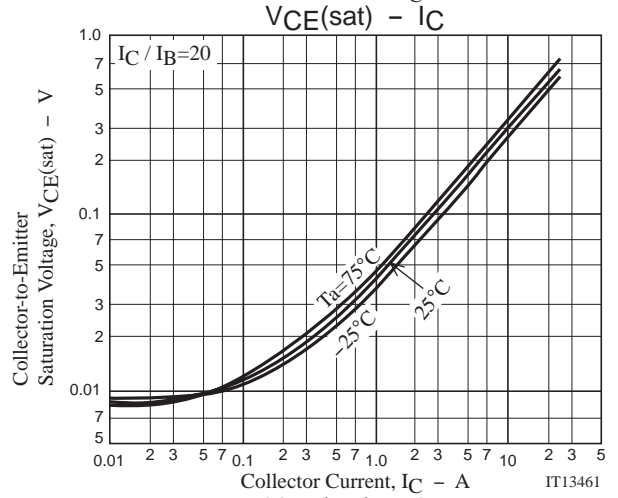
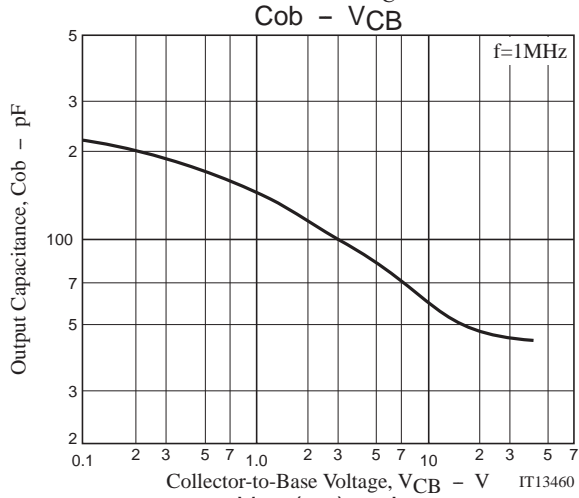
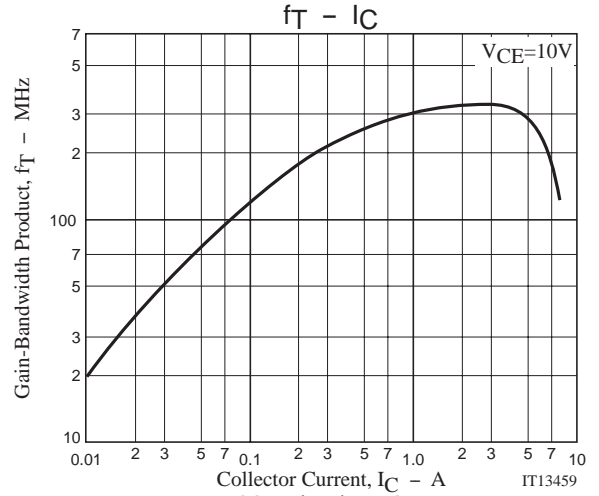
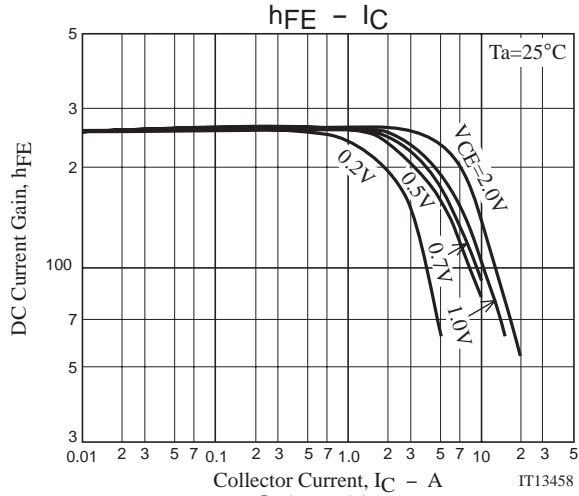
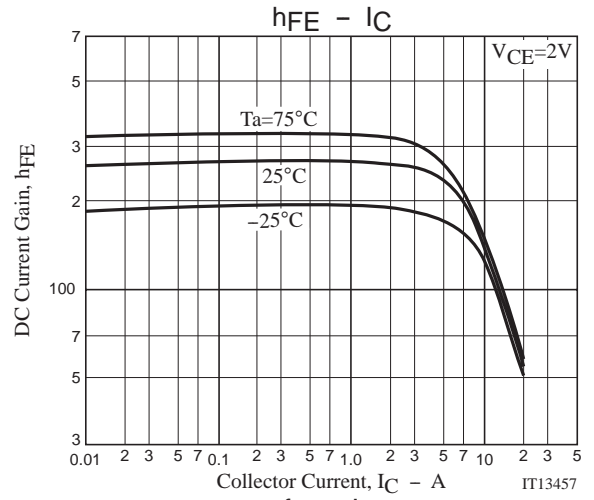
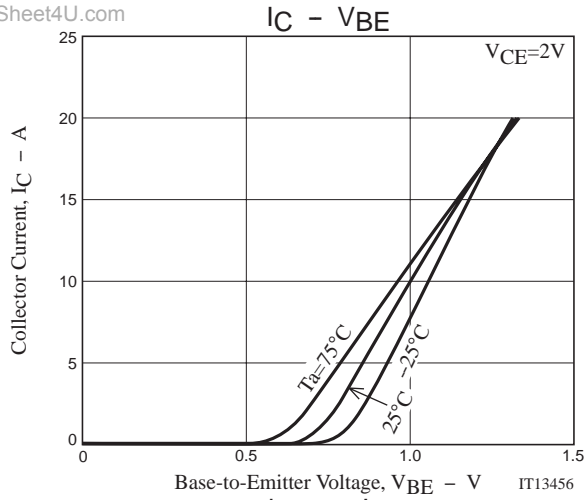
Switching Time Test Circuit



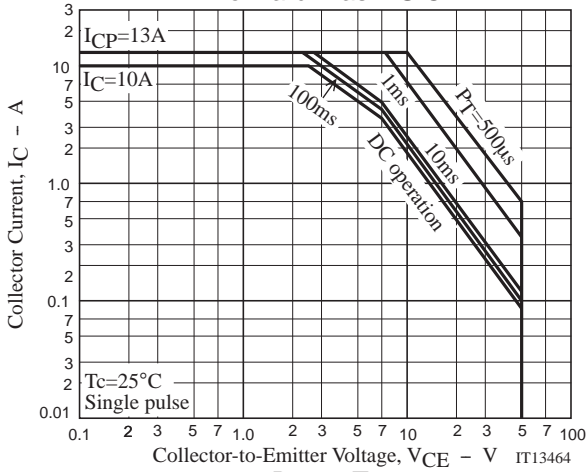
$$I_C = 20I_{B1} = -20I_{B2} = 5A$$



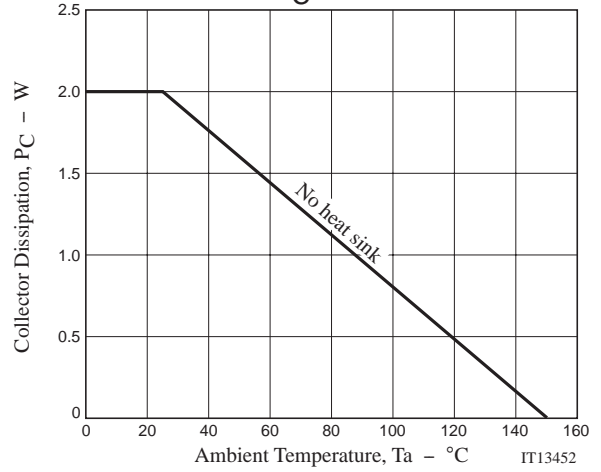
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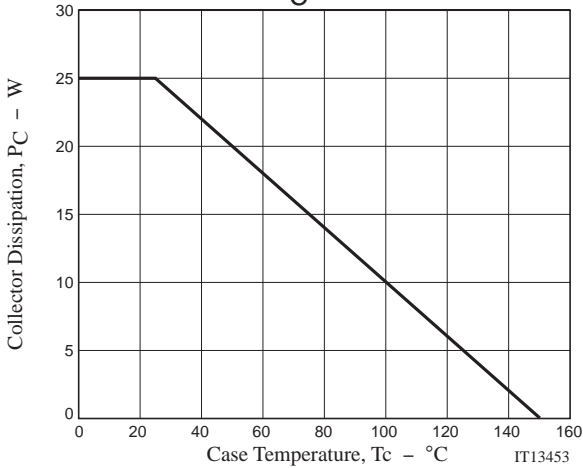
Forward Bias A S O



PC - Ta



PC - Tc



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