



2SC6144SG — NPN Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers

Features

- Adoption of MBIT process
- Large current capacitance ($I_C=10A$)
- Low collector-to-emitter saturation voltage ($V_{CE(sat)}=180mV$ (typ.))
- High-speed switching ($t_f=25ns$ (typ.))

Specifications

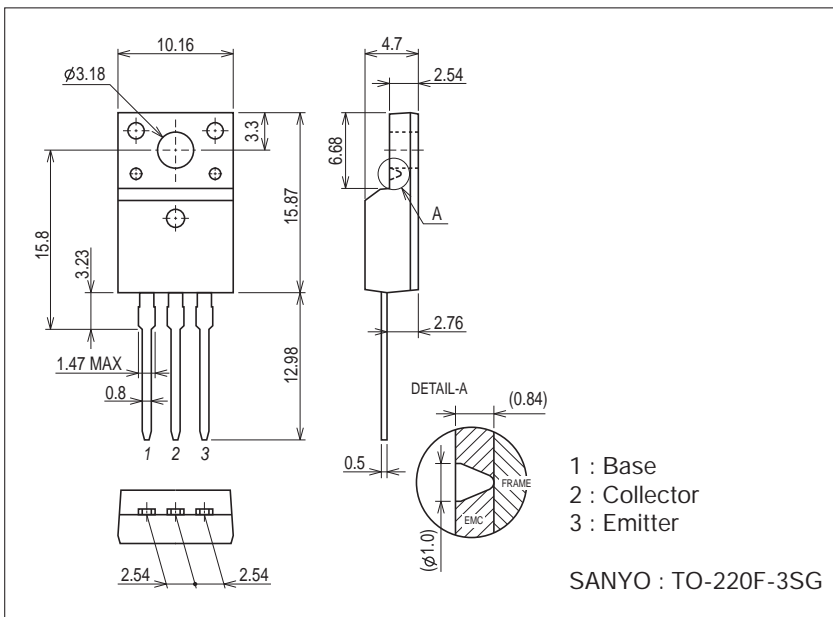
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		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	$T_c=25^\circ C, P_T \leq 1s$	25	W
Junction Temperature	T_j		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Package Dimensions

unit : mm (typ)

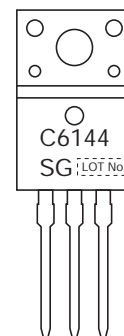
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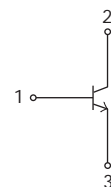
Product & Package Information

- Package : TO-220F-3SG
- JEITA, JEDEC : SC-67
- Minimum Packing Quantity : 50 pcs./magazine

Marking



Electrical Connection

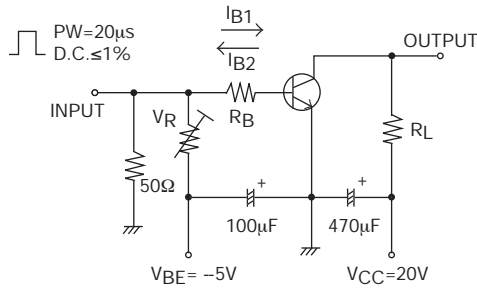


2SC6144SG

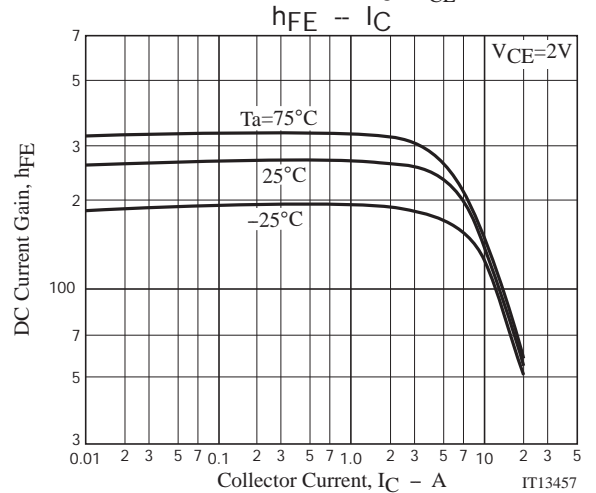
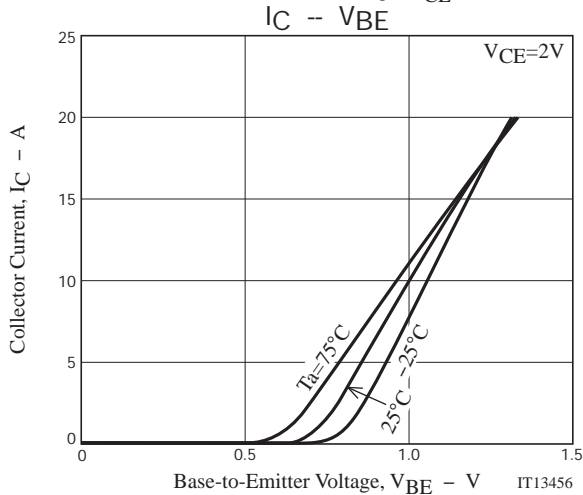
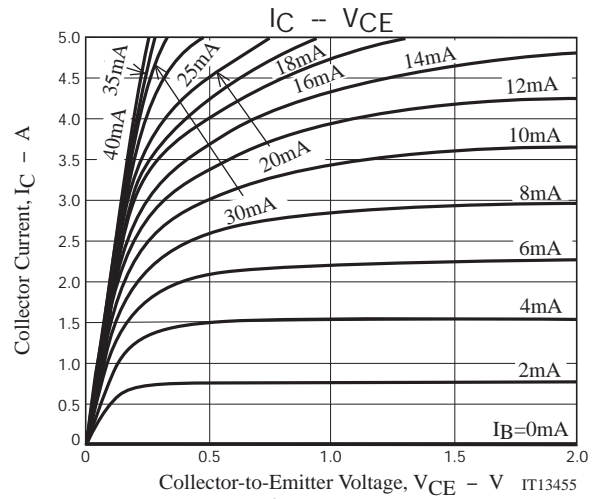
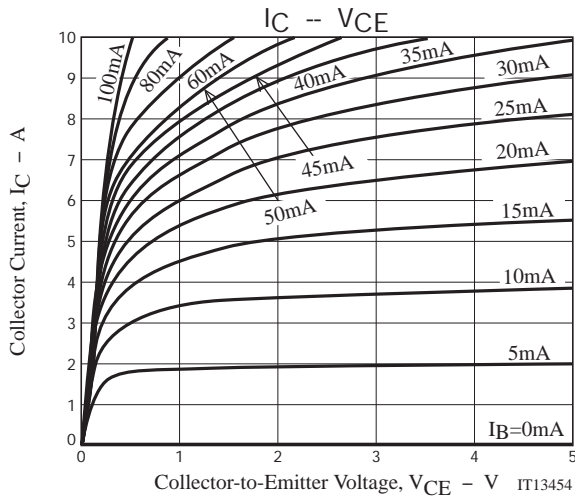
Electrical Characteristics at $T_a=25^\circ\text{C}$

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

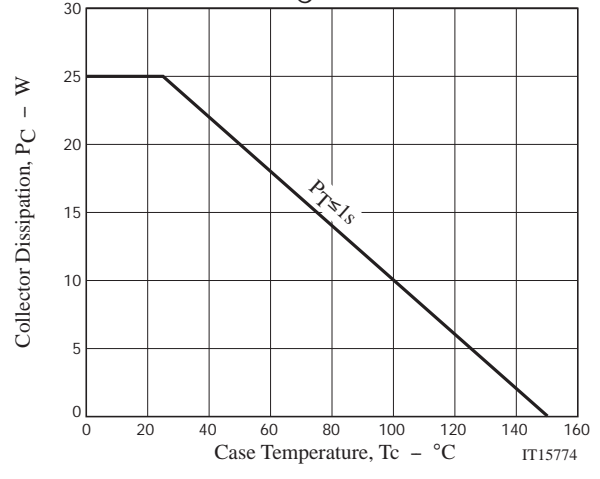
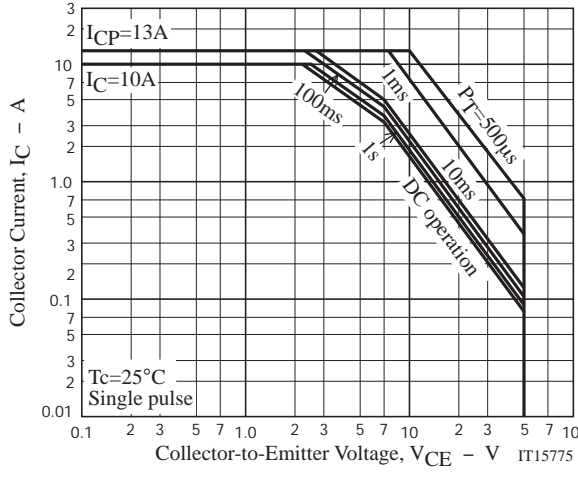
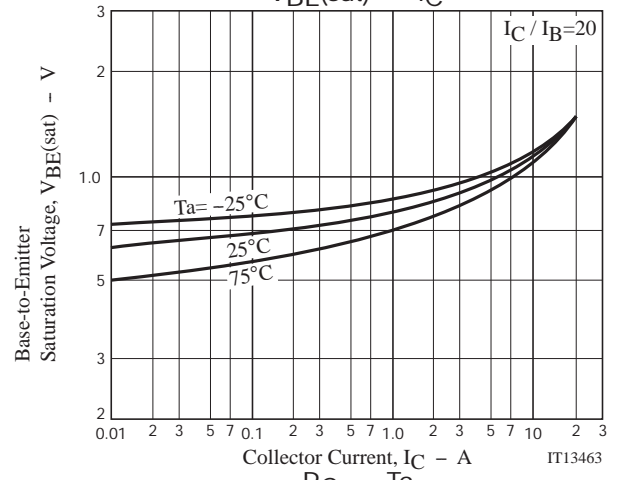
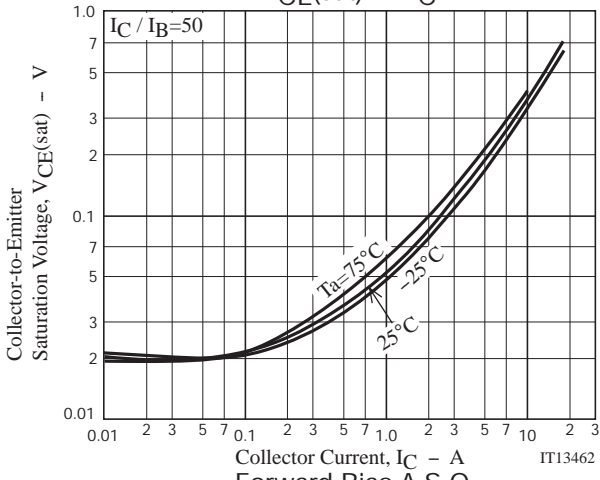
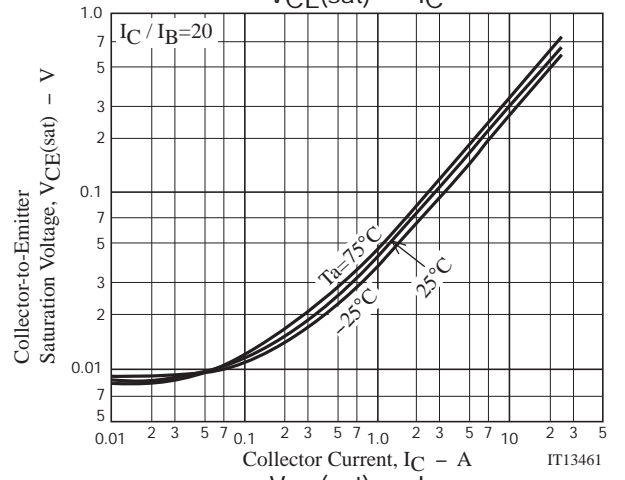
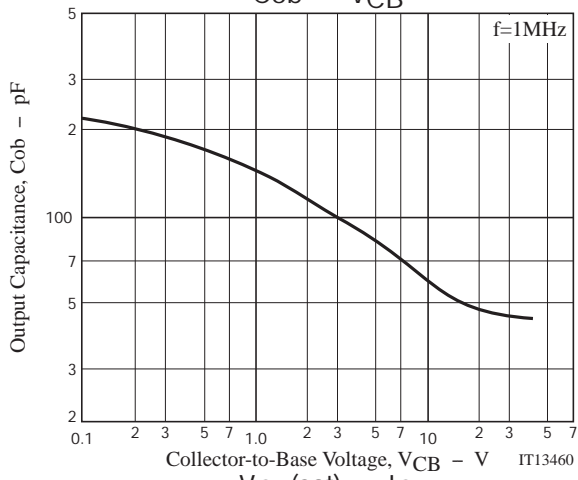
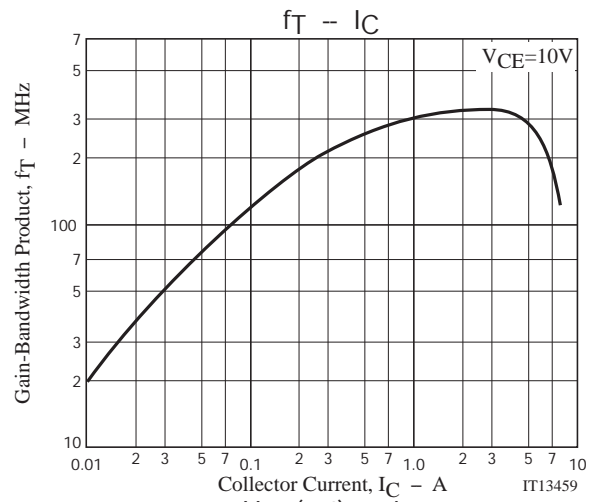
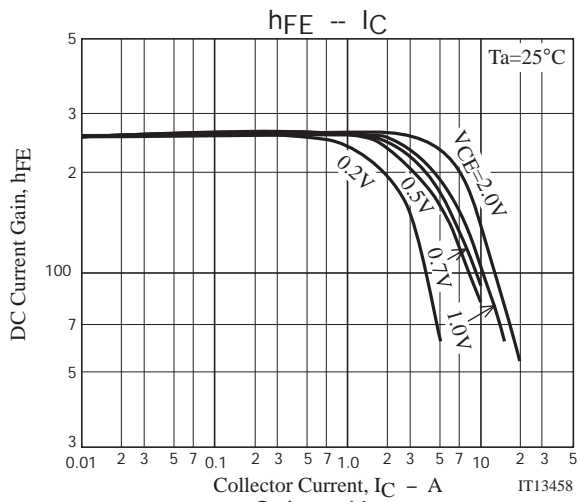
Switching Time Test Circuit



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



2SC6144SG



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