

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

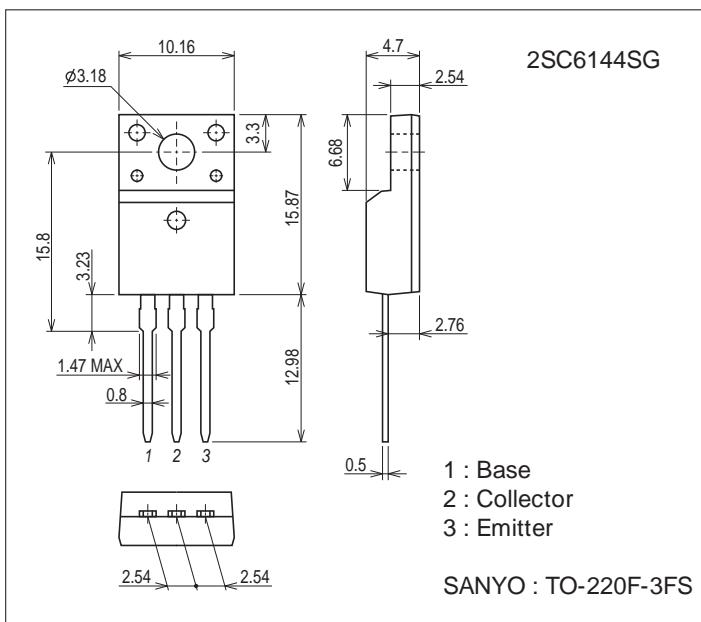
Absolute Maximum Ratings at Ta=25°C

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	$T_C=25^\circ\text{C}$, $P_T \leq 1\text{s}$	25	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Package Dimensions

unit : mm (typ)

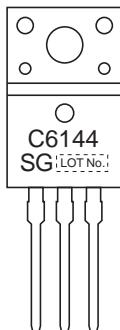
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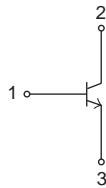
Product & Package Information

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

Marking



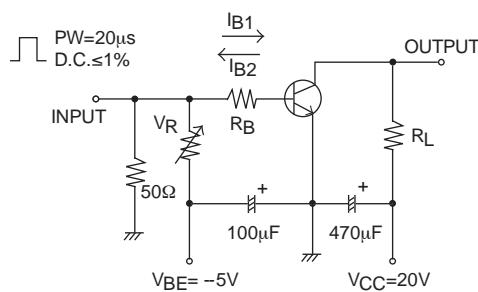
Electrical Connection



Electrical Characteristics at $T_a=25^\circ C$

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}				350	ns
Fall Time	t_f				25	ns

Switching Time Test Circuit

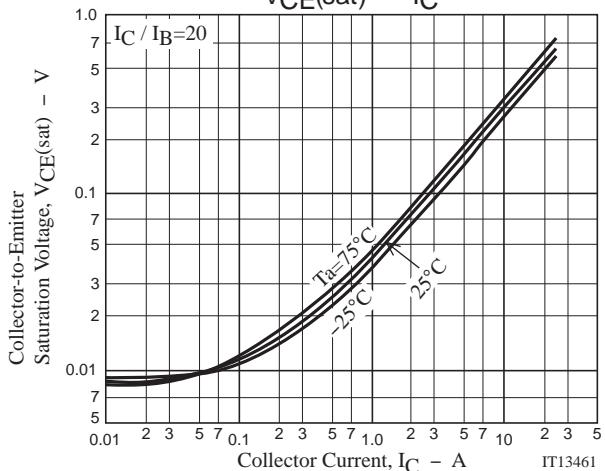
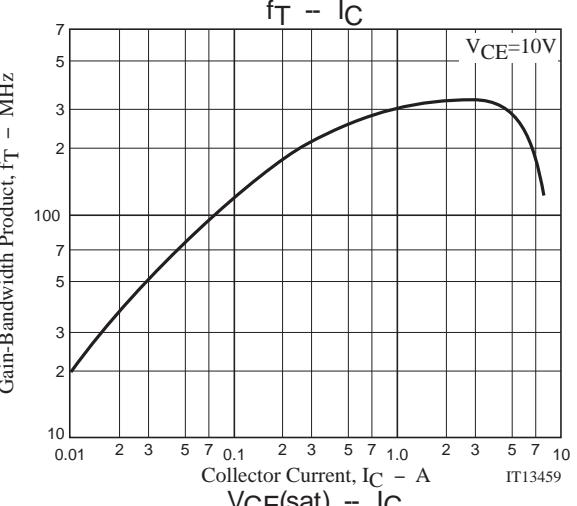
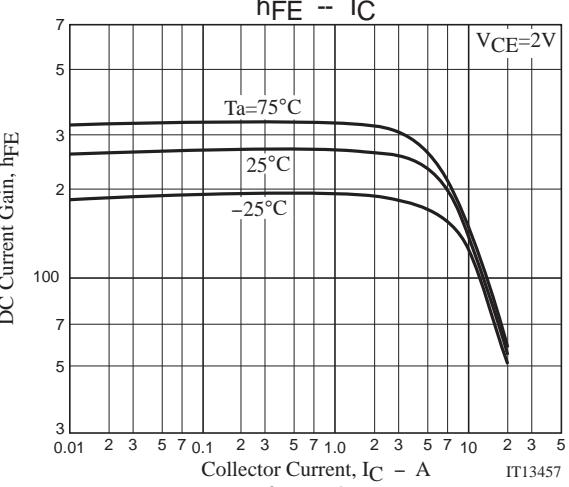
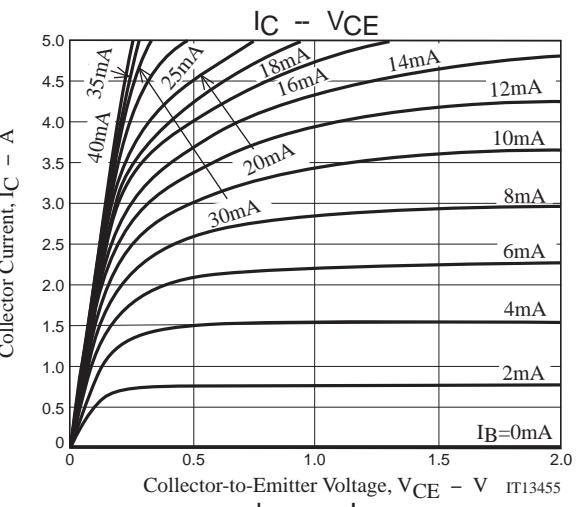
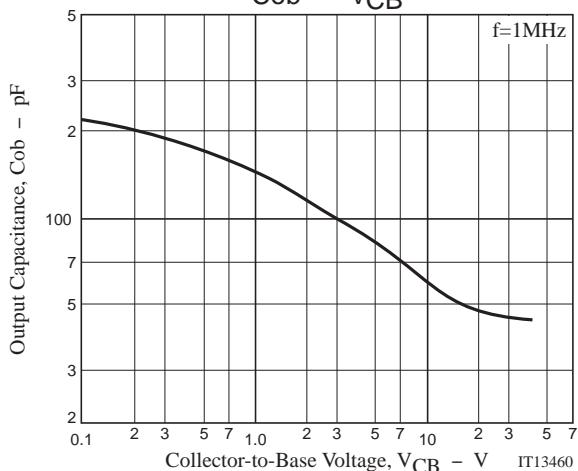
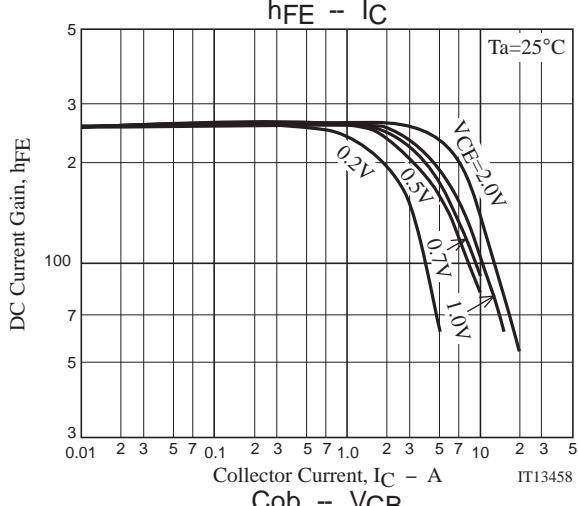
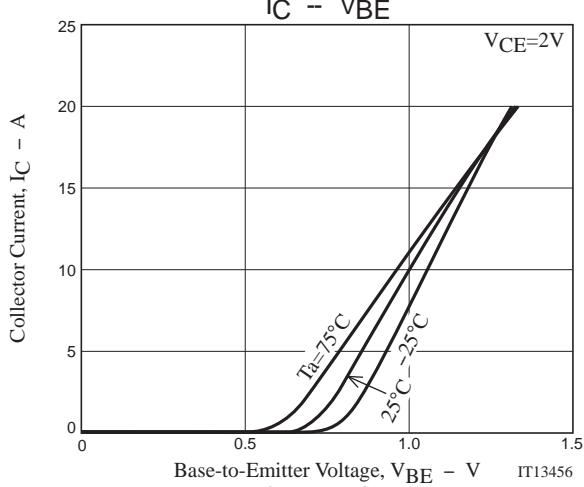
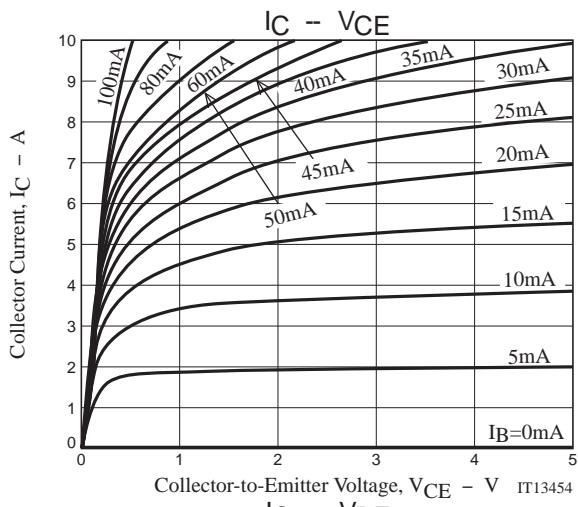


$$I_C = 20I_{B1} = -20I_{B2} = 5A$$

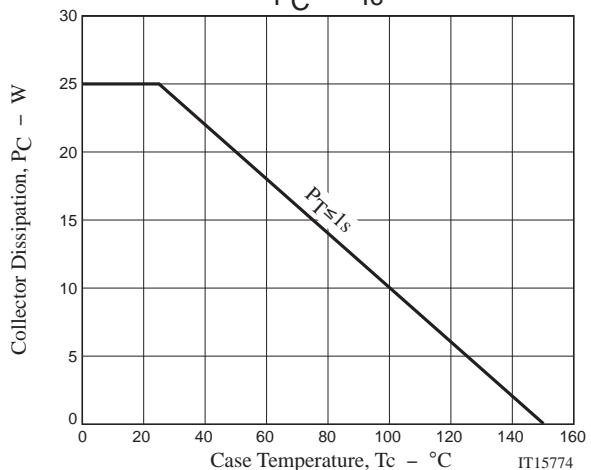
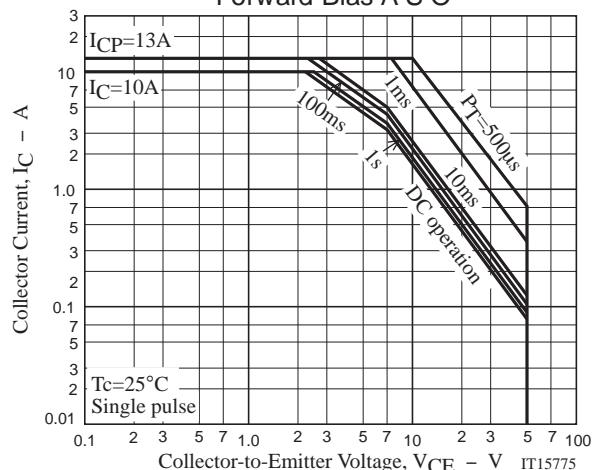
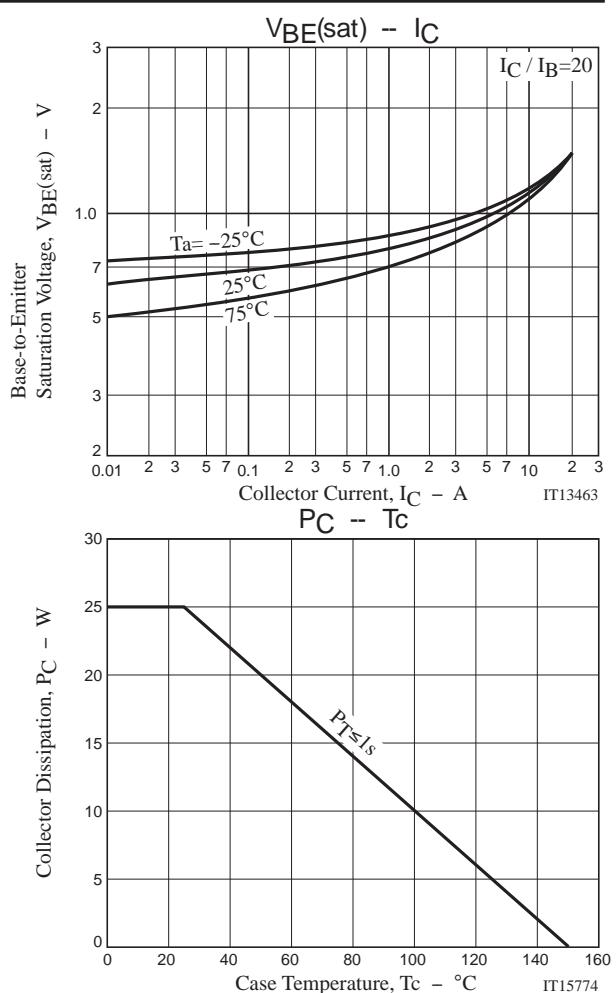
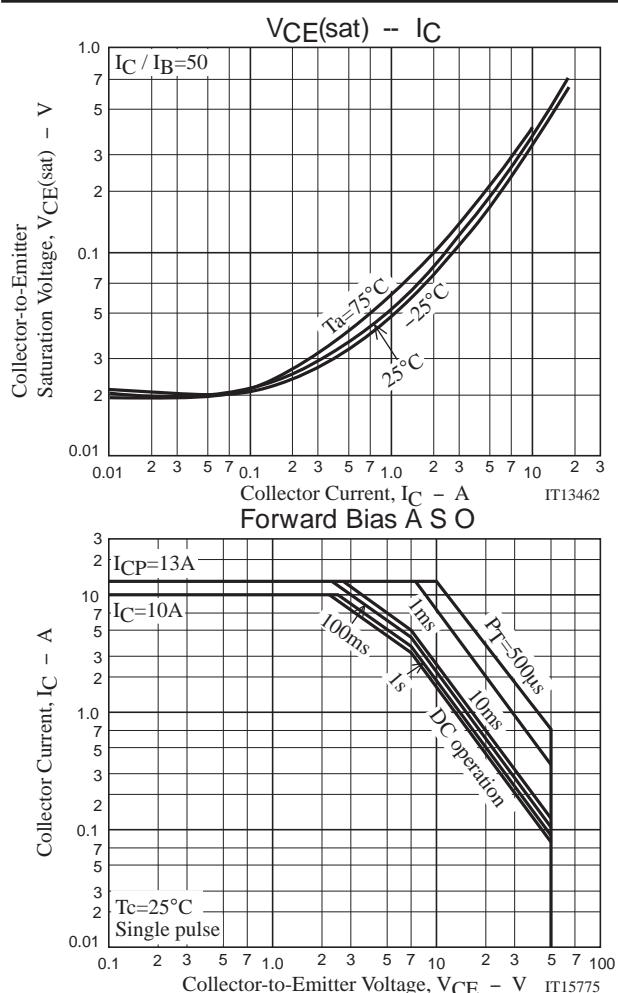
Ordering Information

Device	Package	Shipping	memo
2SC6144SG	TO-220F-3FS	50pcs./magazine	Pb Free

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Magazine Specification

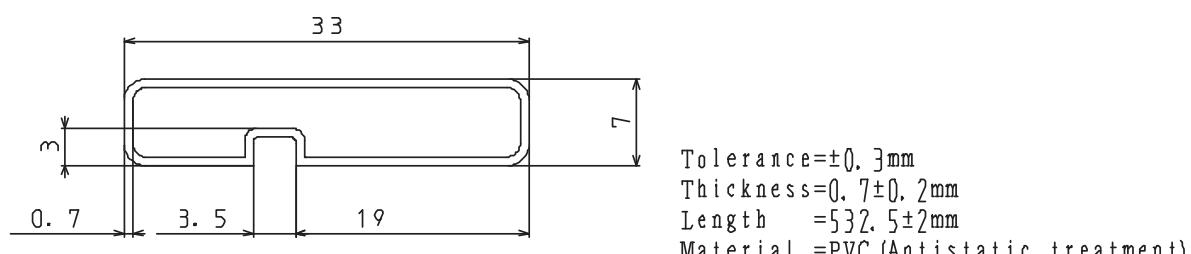
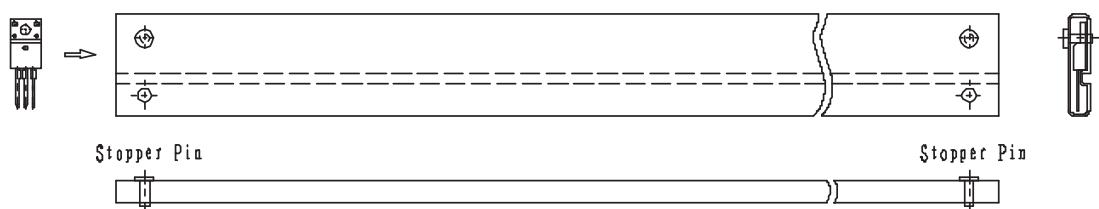
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1. Packing Format

Package Name	Magazine Name	Maximum Number of devices contained (pcs)			Packing format	
		Magazine	Inner box	Outer box	Inner BOX	Outer BOX
TO-220F-3FS	TO-220F	50	1,000	4,000	SPD-0V0001 20 magazines contained Dimensions:mm (external) 568×150×55	SPT-081029 4 inner boxes contained Dimensions:mm (external) 590×225×178

2. Magazine dimensions

(unit:mm)

**3. Storage method to magazine****4. Inner box label (unit:mm)**

Type No. →	69
LOT No. →	00
Quantity →	0,000 (1) LEAD FREE *
Origin →	*Z0722005310C* ASSEMBLY:**** (DIFFUSION:****)

NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

5. Outer box label (unit:mm)

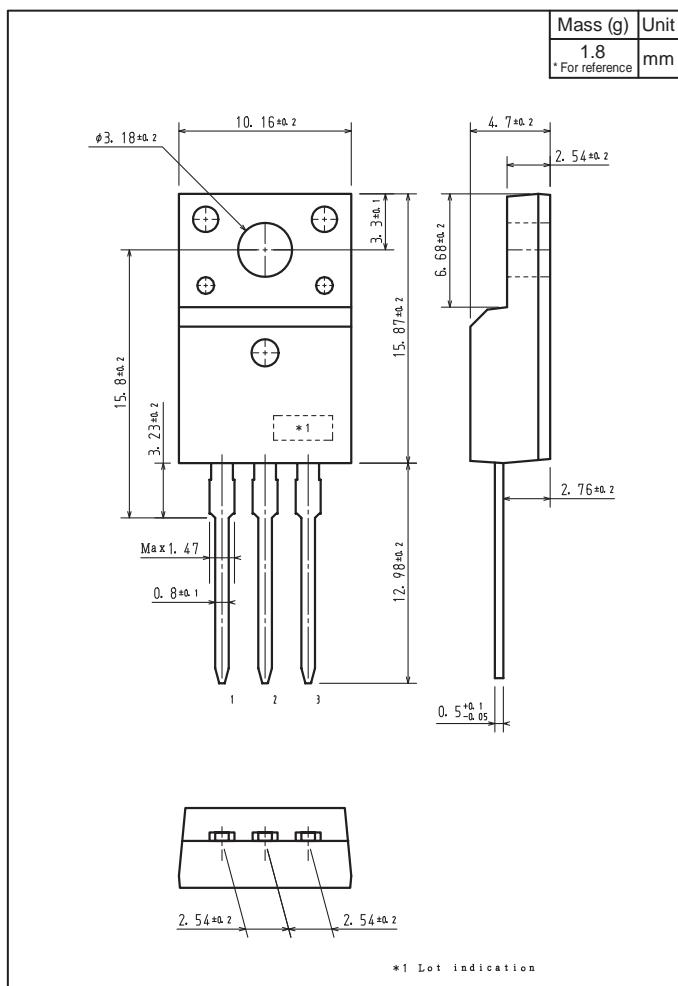
It is a label at the time of factory shipments.
 The form of a label may change in physical distribution process.

TYPE CODE	*****
TYPE	00000000
QTY	0,000 PCS
LOT	00000000
PACKAGE	00000000
SPECIAL	*****
ASSEMBLY	**** (DIFFUSION:****)

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Outline Drawing

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