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2SC6144SG

Bipolar Transistor 50V, 10A, Low $V_{CE(sat)}$ NPN TO-220F-3FS

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 $T_a=25^\circ C$

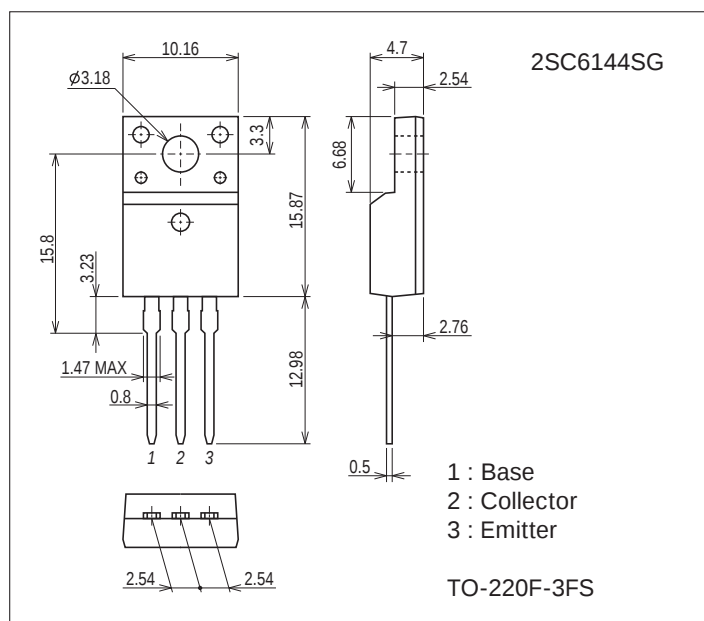
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		60	V
Collector-to-Emitter Voltage	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		10	A
Collector Current (Pulse)	I_{CP}		13	A
Base Current	I_B		2	A
Collector Dissipation	P_C	$T_c=25^\circ C, P_T \leq 1s$	25	W
Junction Temperature	T_j		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

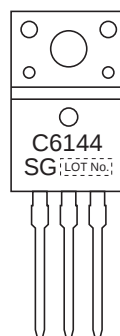
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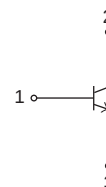
Product & Package Information

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

Marking



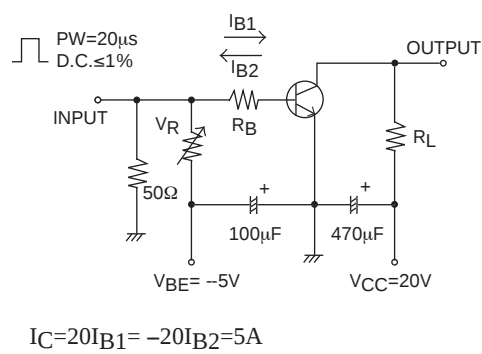
Electrical Connection



Electrical Characteristics at Ta=25°C

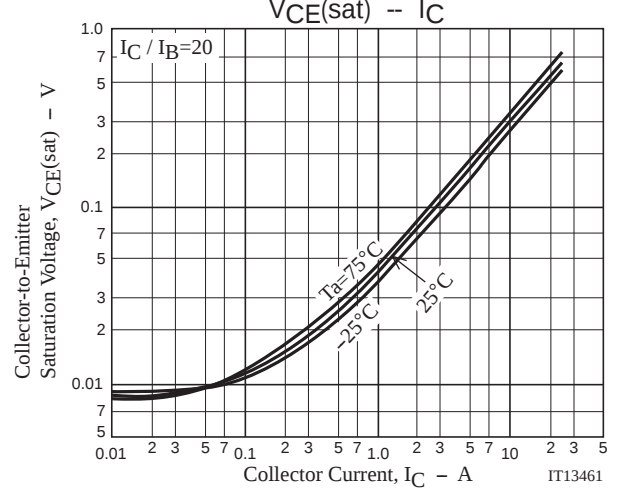
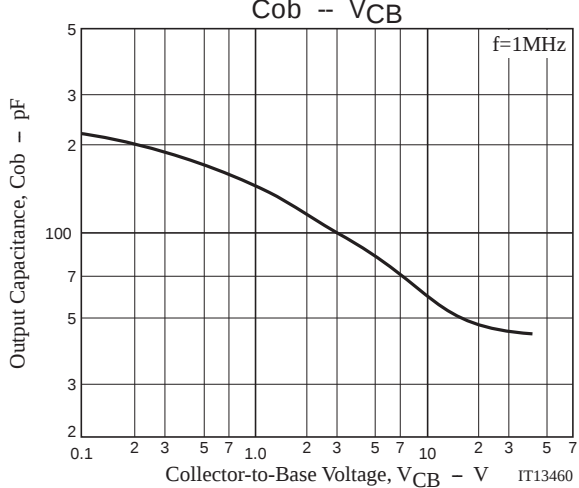
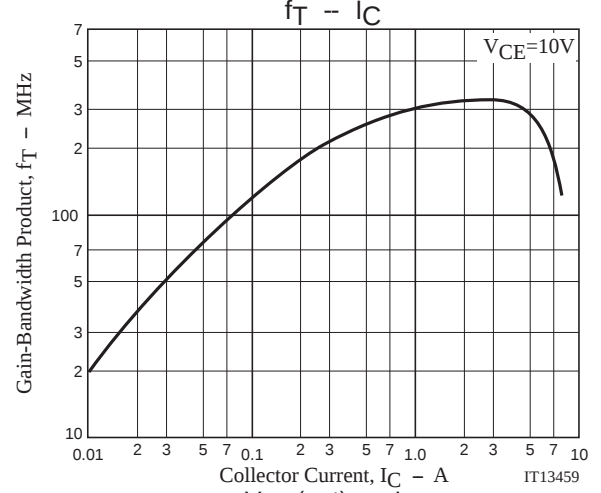
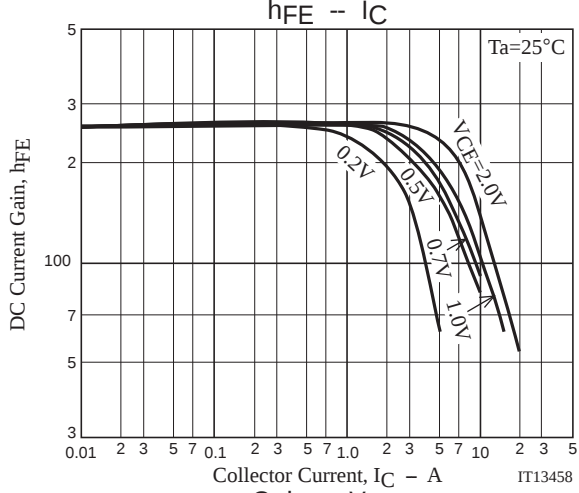
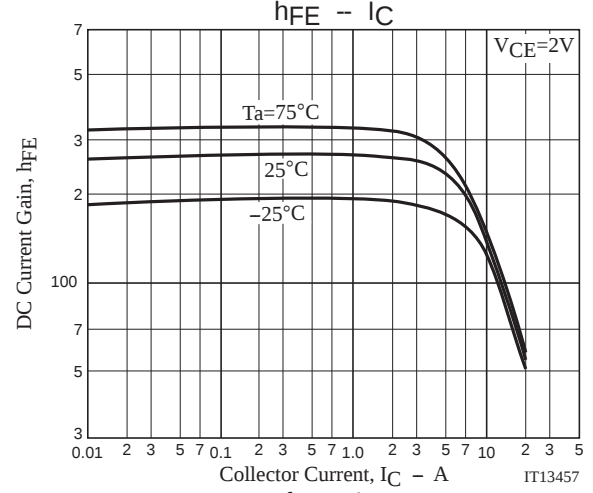
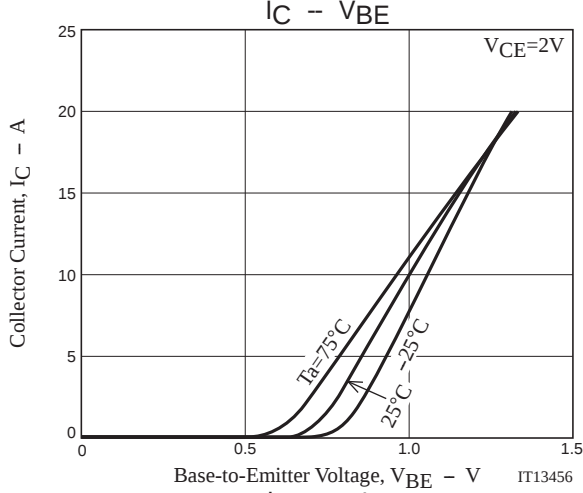
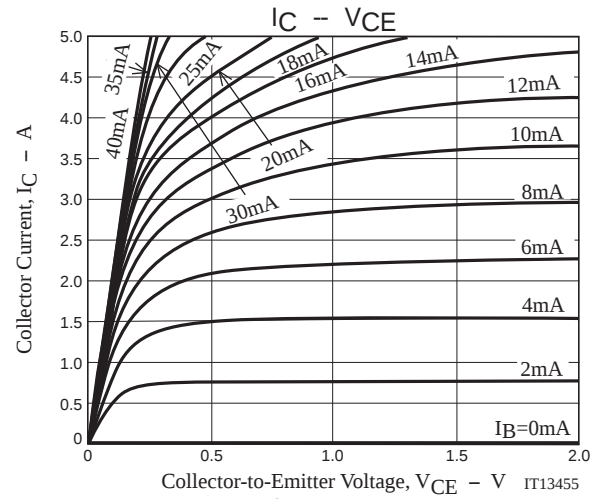
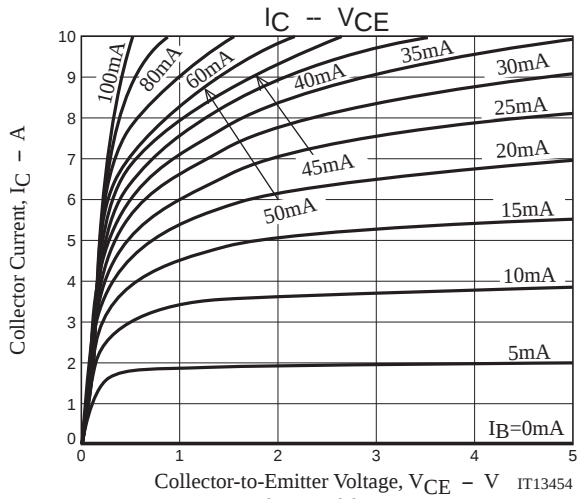
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =40V, I _E =0A			10	μA
Emitter Cutoff Current	IEBO	V _{EB} =4V, I _C =0A			10	μA
DC Current Gain	h _{FE}	V _{CE} =2V, I _C =270mA	200		560	
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _C =3A		330		MHz
Output Capacitance	Cob	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 =100μA, I _E =0A	60			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =1mA, R _{BE} =∞	50			V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	I _E =100μA, 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

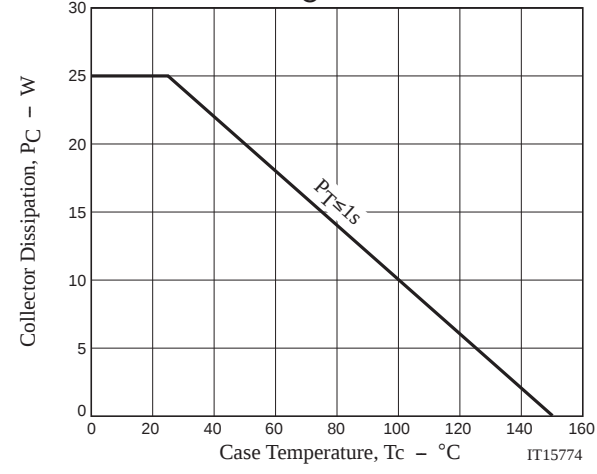
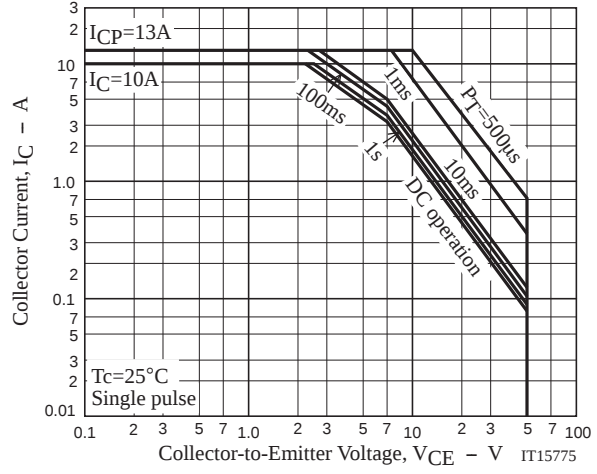
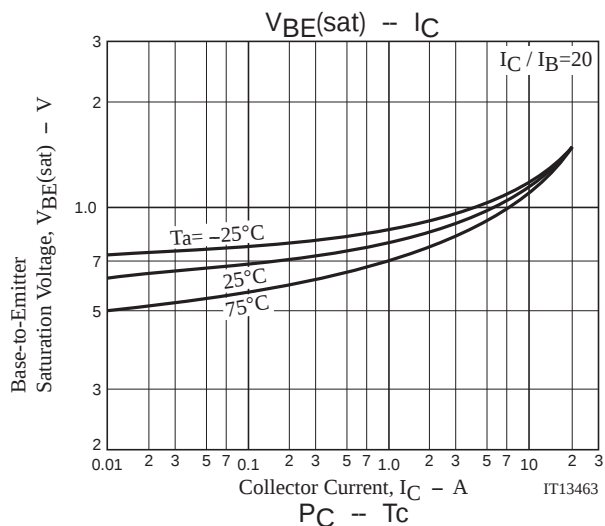
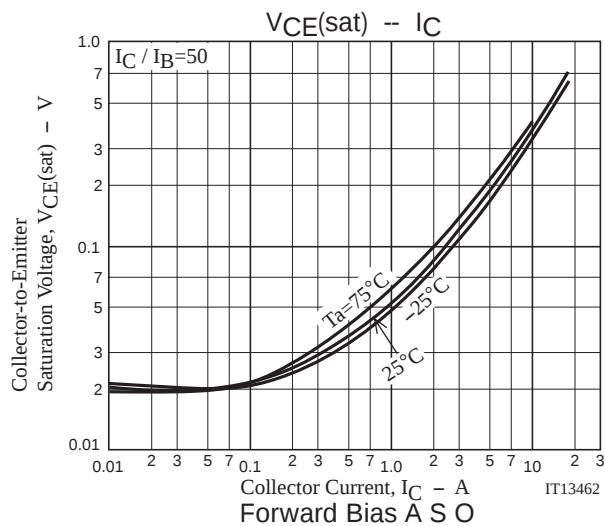
Switching Time Test Circuit



Ordering Information

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





Magazine Specification

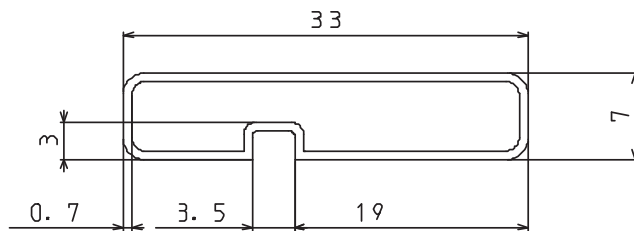
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1. Packing Format

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

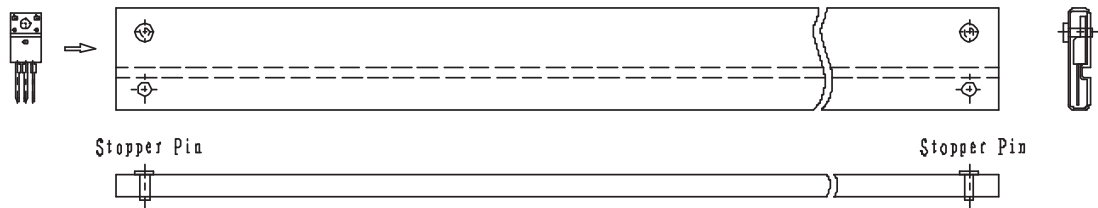
2. Magazine dimensions

(unit:mm)

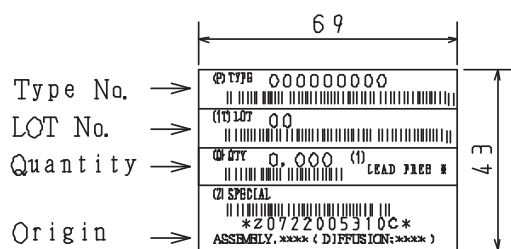


Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

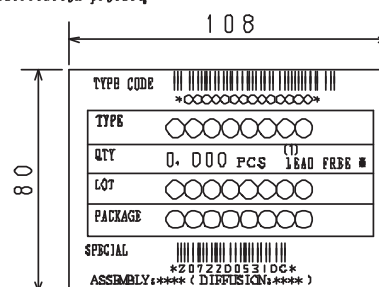


4. Inner box label (unit:mm)



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.



NOTE (1)

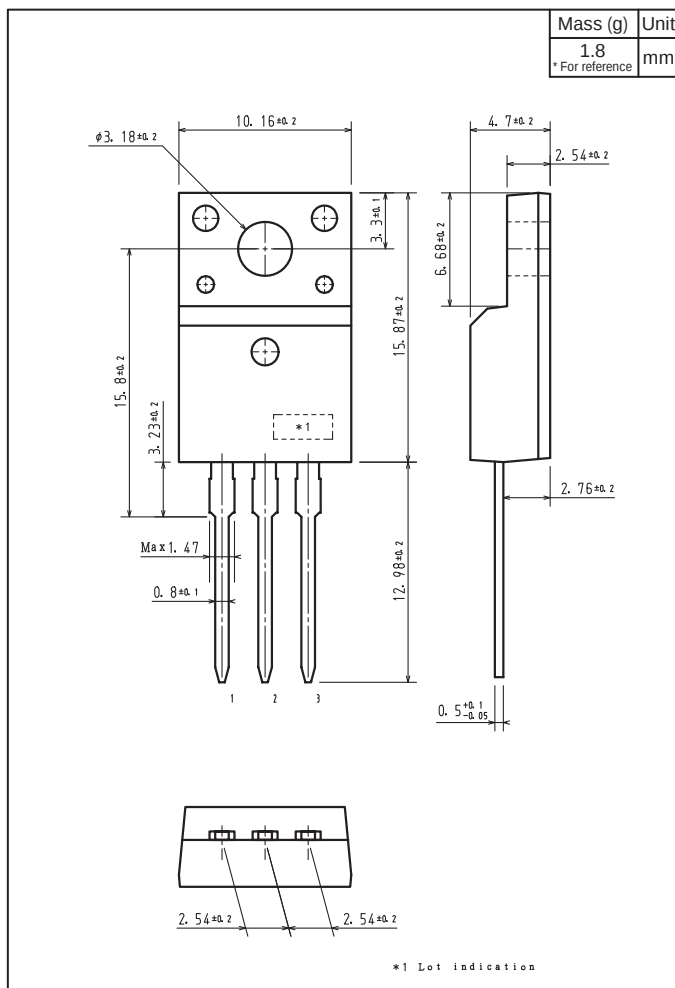
The LEAD FREE # description shows that the
 surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

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Outline Drawing

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