### 2SC6144SG

# ON Semiconductor®

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## **Bipolar Transistor** 50V, 10A, Low VCE(sat) NPN TO-220F-3FS

#### **Applications**

· Relay drivers, lamp drivers, motor drivers

#### **Features**

· Adoption of MBIT process

- Large current capacitance (IC=10A)
- Low collector-to-emitter saturation voltage (VCE(sat)=180mV(typ.))
- High-speed switching (tf=25ns(typ.))

#### **Specifications**

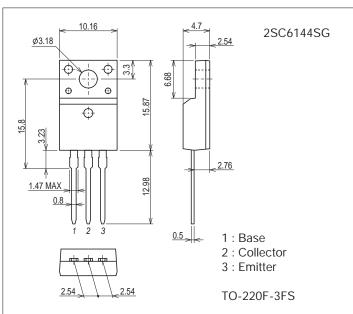
#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		60	V
Collector-to-Emitter Voltage	VCEO		50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		5	V
Collector Current	IC		10	А
Collector Current (Pulse)	ICP		13	А
Base Current	IB		2	А
Collector Dissipation	PC	Tc=25°C, P <sub>T</sub> ≤1s	25	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°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) 7528-003



#### **Product & Package Information**

• Package : TO-220F-3FS

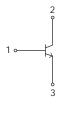
• JEITA, JEDEC : SC-67

• Minimum Packing Quantity: 50 pcs./magazine

#### Marking

#### **Electrical Connection**

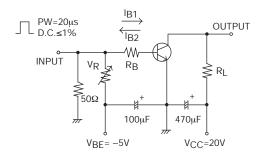




#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
Parameter	Symbol Conditions -		min	typ	max	Uniii
Collector Cutoff Current	ICBO	V <sub>CB</sub> =40V, I <sub>E</sub> =0A			10	μΑ
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =4V, I <sub>C</sub> =0A			10	μΑ
DC Current Gain	hFE	V <sub>CE</sub> =2V, I <sub>C</sub> =270mA	200		560	
Gain-Bandwidth Product	fT	V <sub>CE</sub> =10V, I <sub>C</sub> =3A		330		MHz
Output Capacitance	Cob	V <sub>CB</sub> =10V, f=1MHz		60		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE</sub> (sat)	IC=6A, IB=300mA		180	360	mV
Base-to-Emitter Saturation Voltage	V <sub>BE</sub> (sat)	IC=6A, IB=300mA			1.2	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =100μA, I <sub>E</sub> =0A	60			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	IC=1mA, RBE=∞	50			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I <sub>E</sub> =100μA, I <sub>C</sub> =0A	5			V
Turn-On Time	ton			62		ns
Storage Time	t <sub>stg</sub>	See specified Test Circuit.		350		ns
Fall Time	tf			25		ns

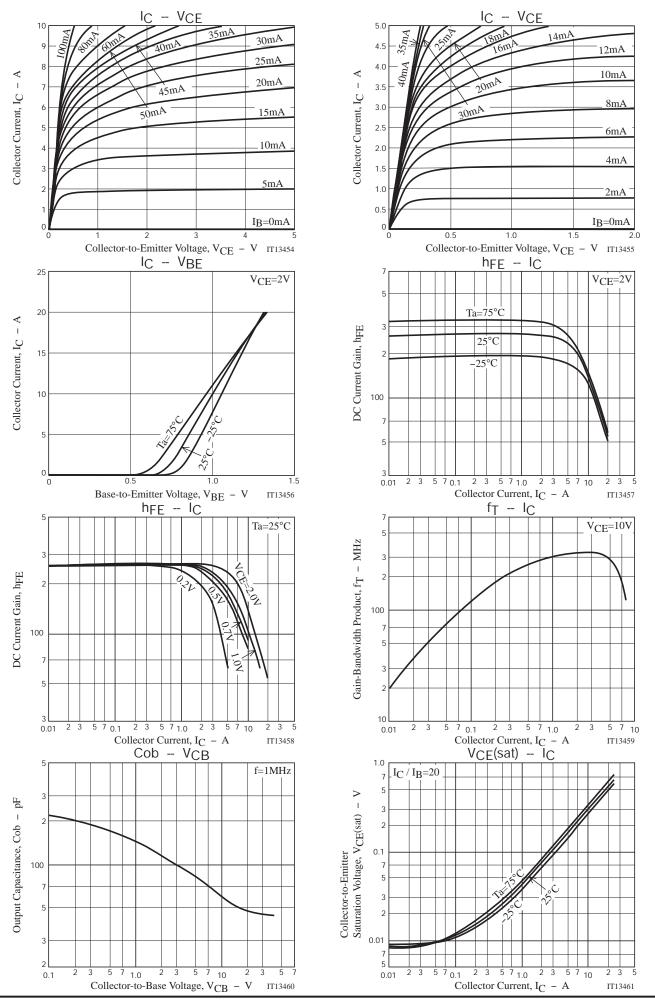
#### Switching Time Test Circuit

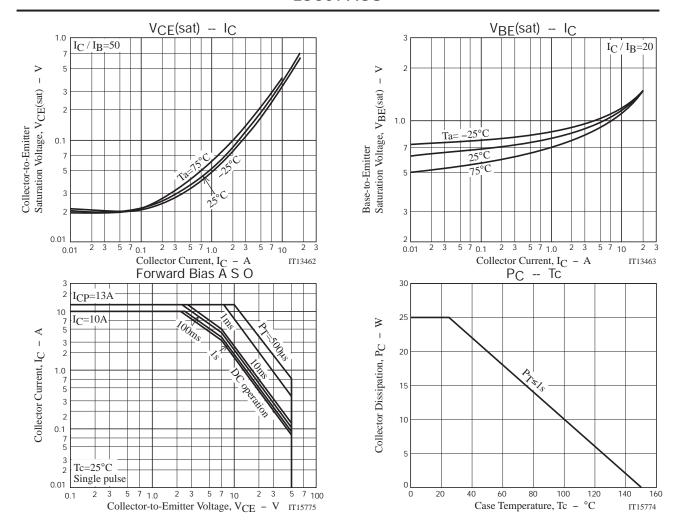


 $I_{C}=20I_{B1}=-20I_{B2}=5A$ 

#### **Ordering Information**

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





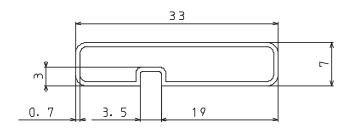
#### Magazine Specification

2SC6144SG

#### 1. Packing Format

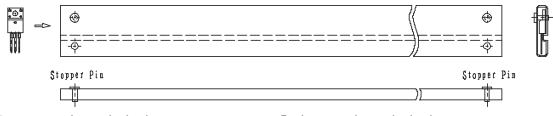
Package Name		Magazine Name	Maximum Number of devices contained (pcs)			Packing format		
1272267	Idag and Idams			Inner box	Outer box	Inner BOX	Outer BOX	
т0-220	F-3F\$	TO-220F	50	1, 000	4,000	SPD-0V0001 20 magazines contained Dimensions:mm (external) 568×150×55	SPT-081029 4 inner boxes contained Dimensions:mm (external) 590×225×178	

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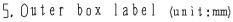


Tolerance=±0, 3mm
Thickness=0, 7±0, 2mm
Length =532, 5±2mm
Material =PVC (Antistatic treatment)

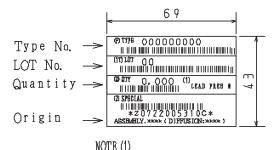
#### 3. Storage method to magazine

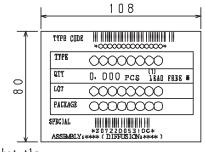


4. Inner box label (unit:mm)



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



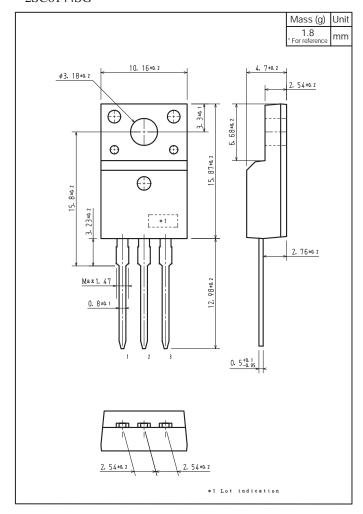


The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

Label		JEITA Phase			
LEAD FREE	3	JEITA Phase 3A			

#### **Outline Drawing**

2SC6144SG



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