

# 2SC3211, 2SC3211A

## Silicon NPN Triple-Diffused Junction Mesa Type

High Breakdown Voltage, High Speed Switching

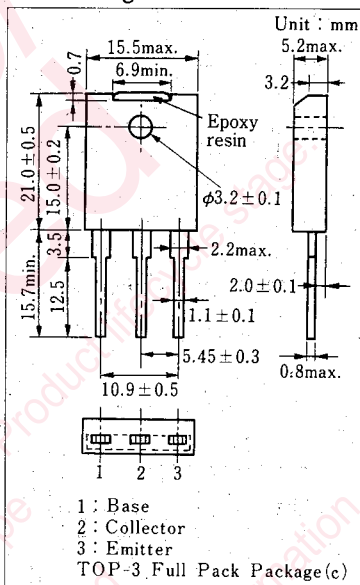
### ■ Package Dimensions

### ■ Features

- High speed switching
- High collector-base voltage ( $V_{CB0}$ )
- Low collector-emitter saturation voltage ( $V_{CE(sat)}$ )
- "Full Pack" package for simplified mounting on a heat sink with one screw

### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

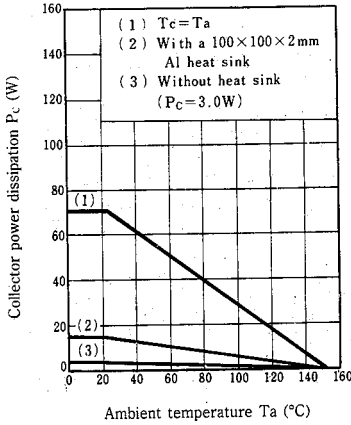
Item	Symbol	Value	Unit
Collector-base voltage	2SC3211	800	V
	2SC3211A	900	
Collector-emitter voltage	$V_{CEO}$	500	V
Emitter-base voltage	$V_{EBO}$	8	V
Peak collector current	$I_{CP}$	10	A
Collector current	$I_C$	5	A
Base current	$I_B$	3	A
Collector power dissipation	$T_c=25^\circ\text{C}$	70	W
	$T_a=25^\circ\text{C}$	3	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$



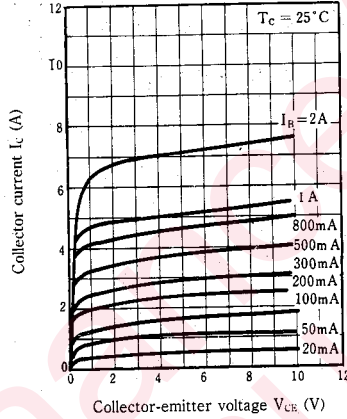
### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	2S3211	$V_{CB}=800\text{ V}, I_E=0$			100	$\mu\text{A}$
	2S3211A	$V_{CB}=900\text{ V}, I_E=0$			100	
Emitter cutoff current	$I_{EBO}$	$V_{EB}=5\text{ V}, I_C=0$			100	$\mu\text{A}$
Collector-emitter voltage	$V_{CEO(sus)}$	$I_C=0.2\text{ A}, L=25\text{ mH}$	500			V
DC current gain	$h_{FE1}$	$V_{CE}=5\text{ V}, I_C=0.1\text{ A}$	15			
	$h_{FE2}$	$V_{CE}=5\text{ V}, I_C=3\text{ A}$	8			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{ A}, I_B=0.6\text{ A}$			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=3\text{ A}, I_B=0.6\text{ A}$			1.5	V
Transition frequency	$f_T$	$V_{CE}=10\text{ V}, I_C=0.5\text{ A}, f=1\text{ MHz}$		3		MHz
Turn-on time	2SC3211	$t_{on}$	$I_C=3\text{ A}$		1	$\mu\text{s}$
	2SC3211A				1.2	
Storage time	$t_{stg}$	$I_{B1}=0.6\text{ A}, I_{B2}=-0.6\text{ A}$			3	$\mu\text{s}$
Collector current fall time	2SC3211	$t_f$	$V_{CC}=200\text{ V}$		1	$\mu\text{s}$
	2SC3211A				1.2	

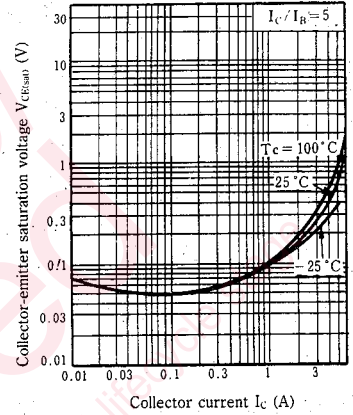
$P_C - T_a$



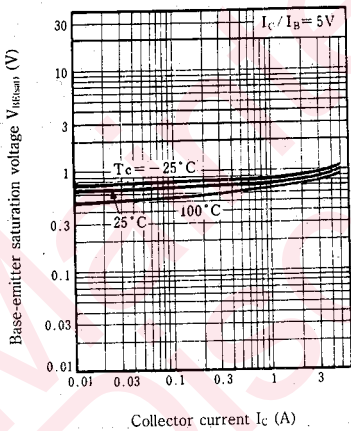
$I_C - V_{CE}$



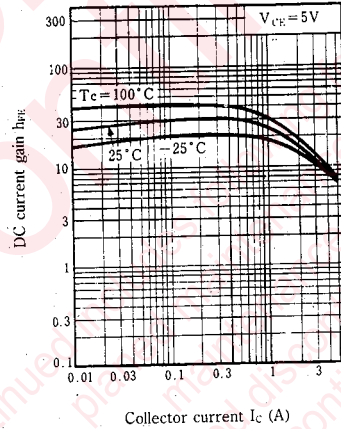
$V_{CE(sat)} - I_C$



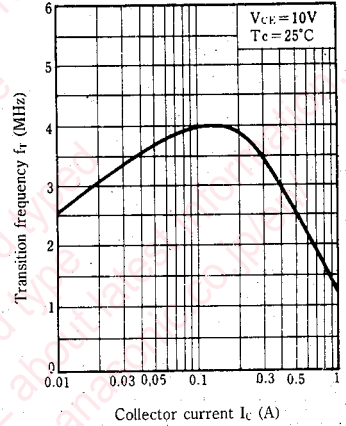
$V_{BE(sat)} - I_C$



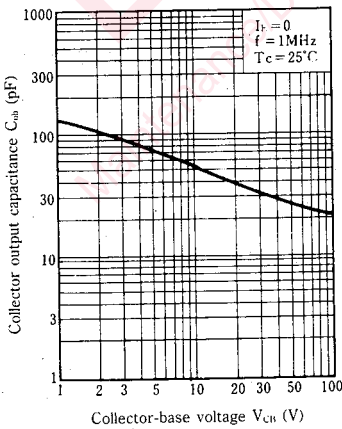
$h_{FE} - I_C$



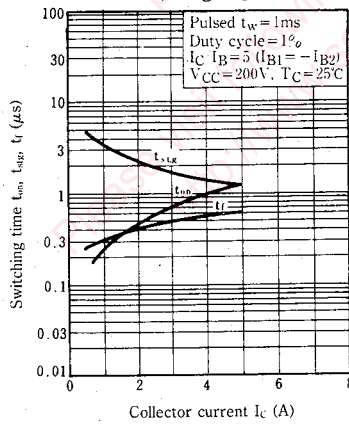
$f_T - I_C$



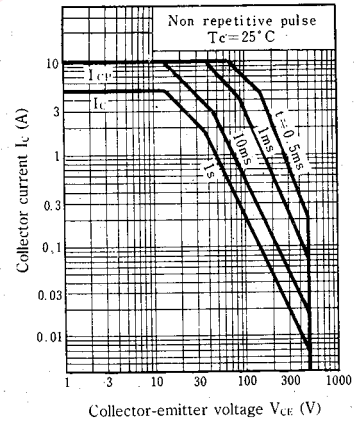
$C_{ob} - V_{CB}$



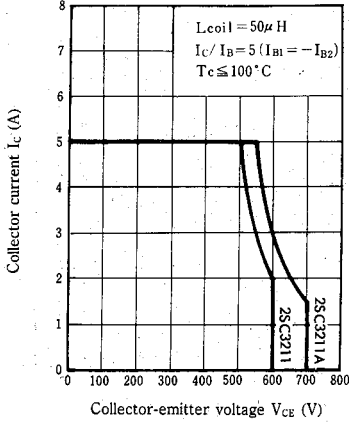
$t_{on}, t_{stg}, t_f - I_C$



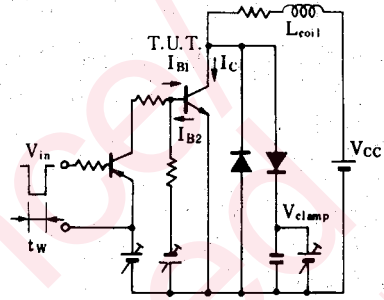
Safety operation area-forward bias (ASO)



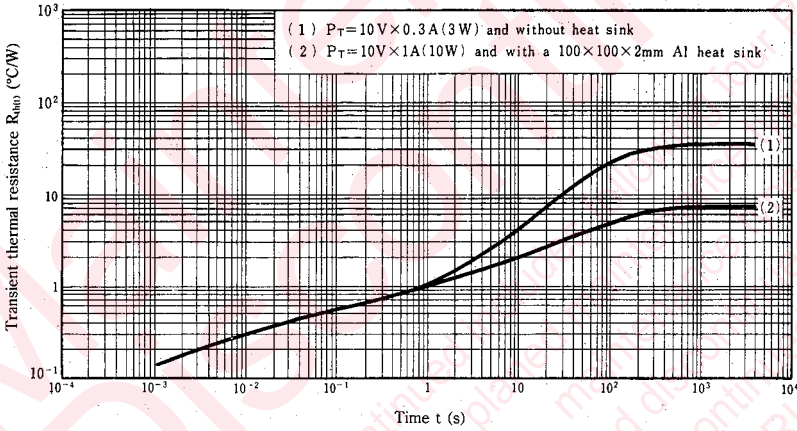
Safety operation area-reverse bias (ASO)



Measurement circuit of reverse bias ASO



$R_{th(t)} - t$



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