

**2SC5889****DC / DC Converter Applications****Applications**

- Relay drivers, lamp drivers, motor drivers, strobes.

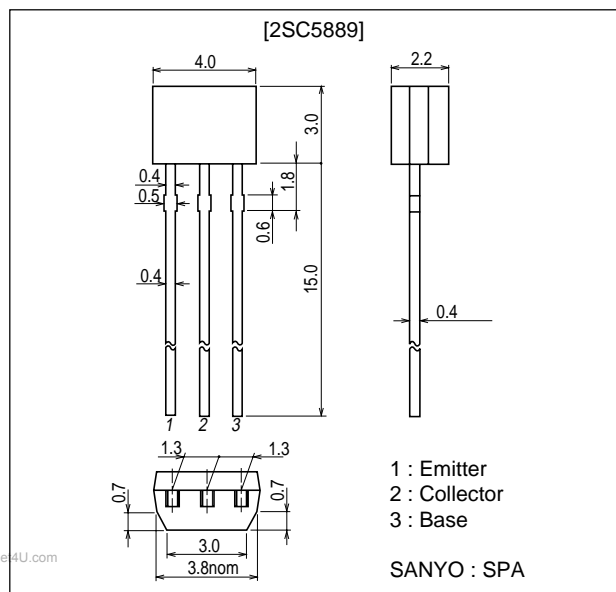
**Features**

- Adoption of MBIT process.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- High allowable power dissipation.

**Package Dimensions**

unit : mm

2033A

**Specifications****Absolute Maximum Ratings** at Ta=25°C

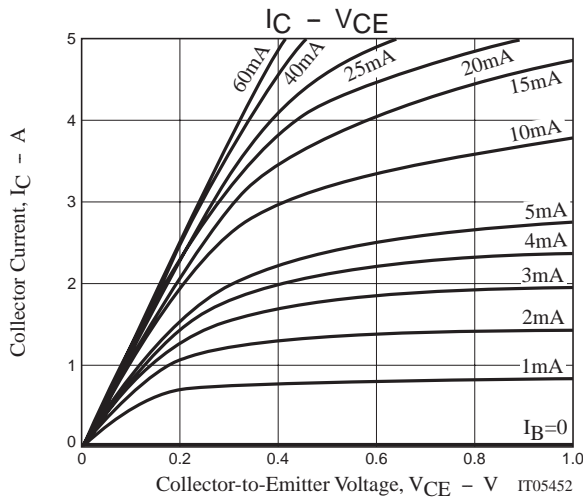
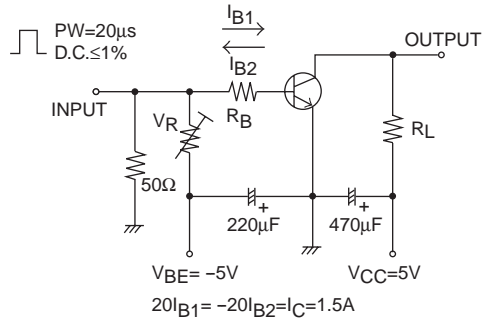
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		15	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>		10	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		7	V
Collector Current	I <sub>C</sub>		5	A
Collector Current (Pulse)	I <sub>CP</sub>		9	A
Base Current	I <sub>B</sub>		1	A
Collector Dissipation	P <sub>C</sub>		0.55	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

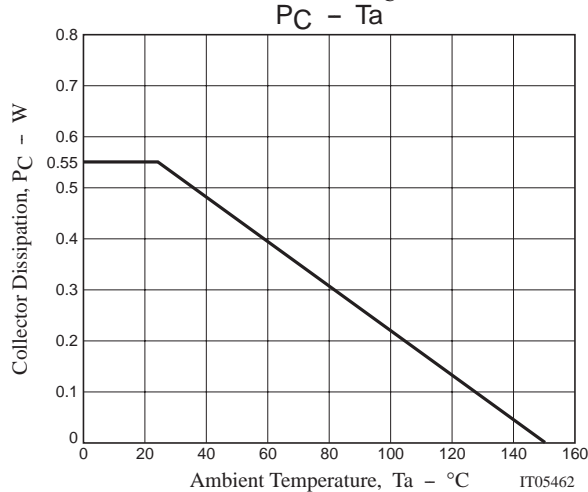
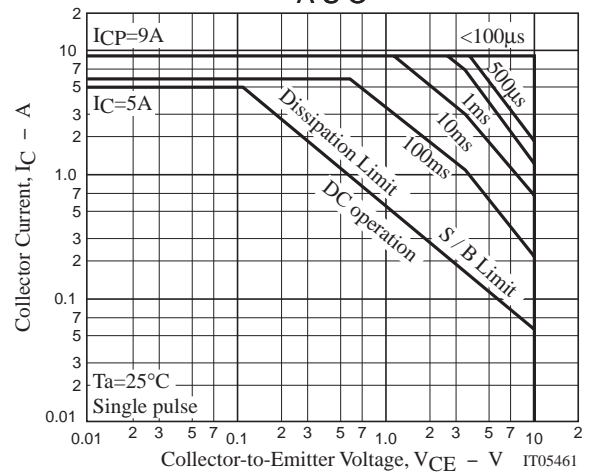
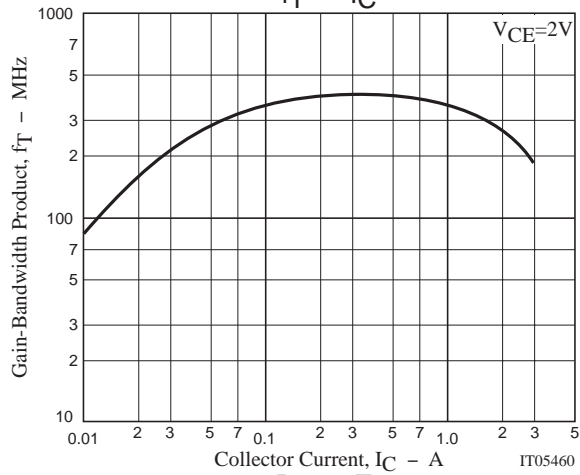
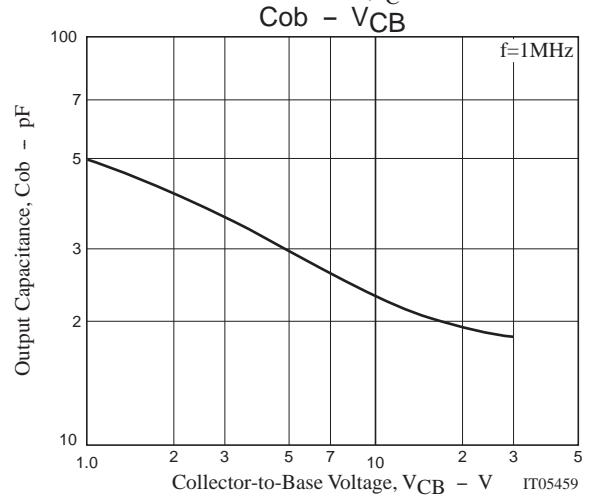
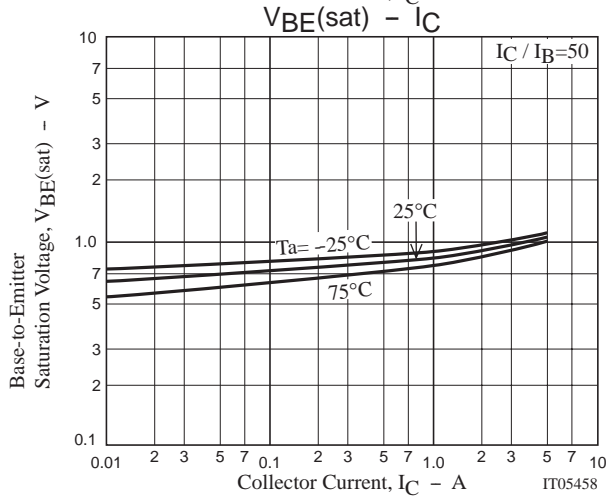
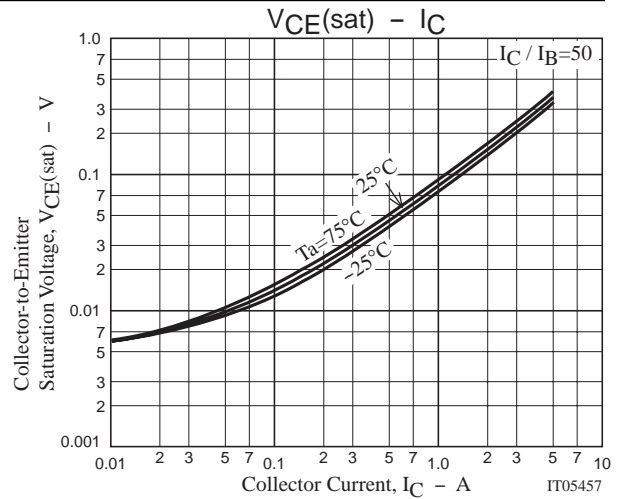
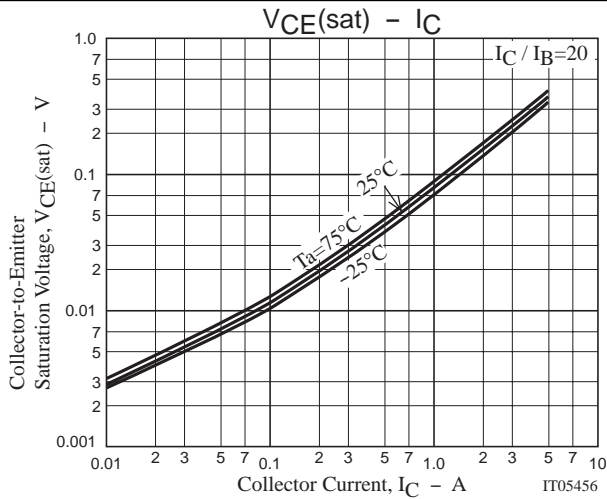
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Electrical Characteristics at  $T_a=25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=10\text{V}, I_E=0$			0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=2\text{V}, I_C=500\text{mA}$	450		1200	
	$h_{FE2}$	$V_{CE}=2\text{V}, I_C=3\text{A}$	200			
Gain-Bandwidth Product	$f_T$	$V_{CE}=2\text{V}, I_C=500\text{mA}$		350		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		23		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=1.5\text{A}, I_B=30\text{mA}$		120	180	mV
	$V_{CE(sat)2}$	$I_C=3\text{A}, I_B=60\text{mA}$		230	350	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5\text{A}, I_B=30\text{mA}$		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=1\text{mA}, R_{BE}=\infty$	10			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	7			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		210		ns
Fall Time	$t_f$	See specified Test Circuit.		11		ns

## Switching Time Test Circuit





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