Ordering number : ENN7401

NPN Epitaxial Planar Silicon Transistors

2SC5889

DC / DC Converter Applications

Applications

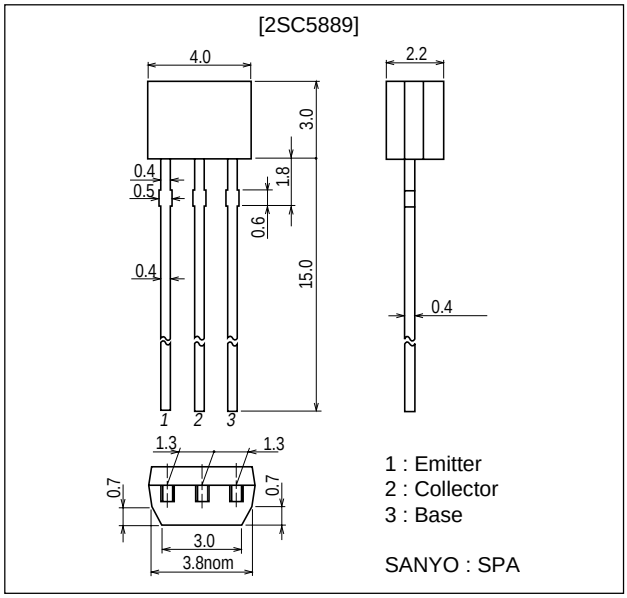
- Relay drivers, lamp drivers, motor drivers, strobes.

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_{CBO}		15	V
Collector-to-Emitter Voltage	V_{CEO}		10	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		5	A
Collector Current (Pulse)	I_{CP}		9	A
Base Current	I_B		1	A
Collector Dissipation	P_C		0.55	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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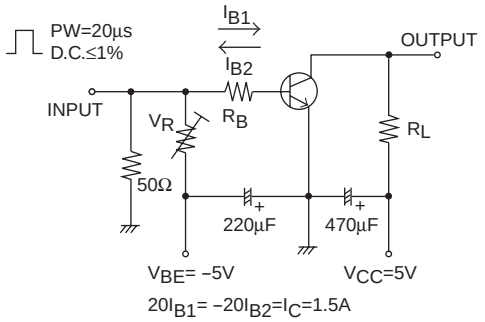
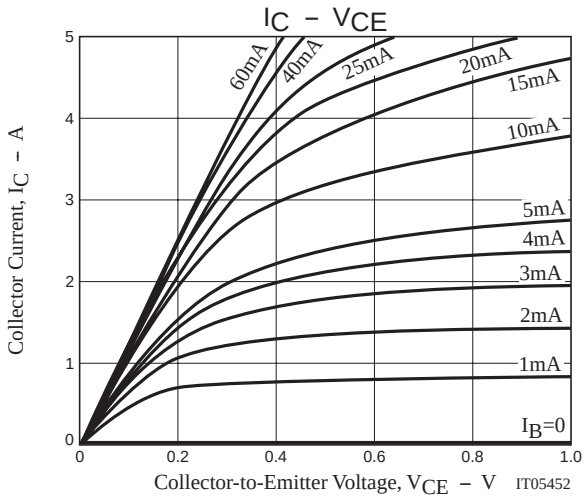
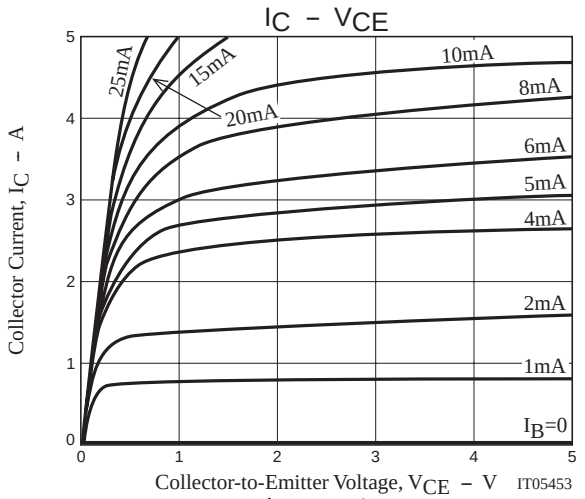
Electrical Characteristics at Ta=25°C

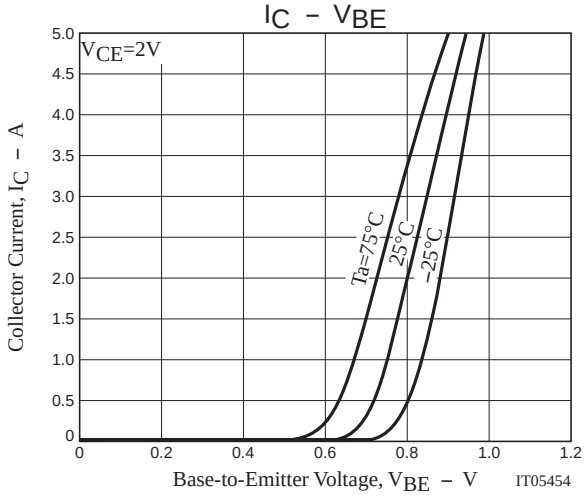
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=10V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=500mA	450		1200	
	$h_{FE}2$	V_{CE}=2V, I_C=3A	200			
Gain-Bandwidth Product	f_T	V_{CE}=2V, I_C=500mA		350		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		23		pF
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)1$	I_C=1.5A, I_B=30mA		120	180	mV
	$V_{CE}(sat)2$	I_C=3A, I_B=60mA		230	350	mV
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=1.5A, I_B=30mA		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)}CBO$	I_C=10μA, I_E=0	15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)}CES$	I_C=1mA, R_{BE}=∞	10			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)}EBO$	I_E=10μA, 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

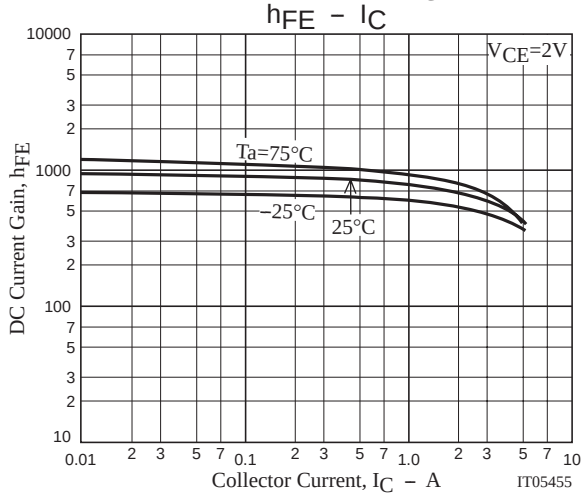
Switching Time Test Circuit



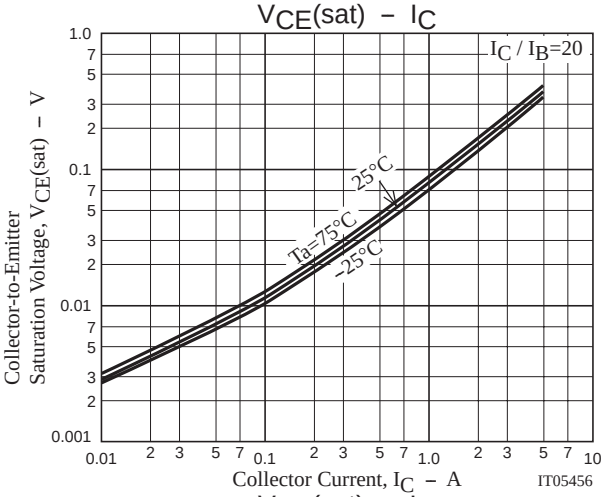




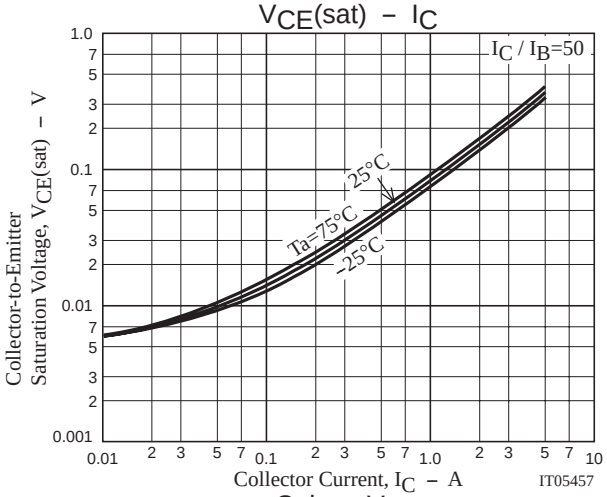




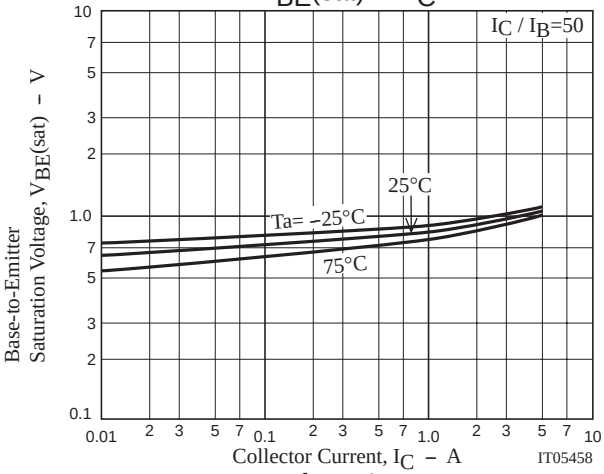
$V_{CE}(sat)$ – I_C



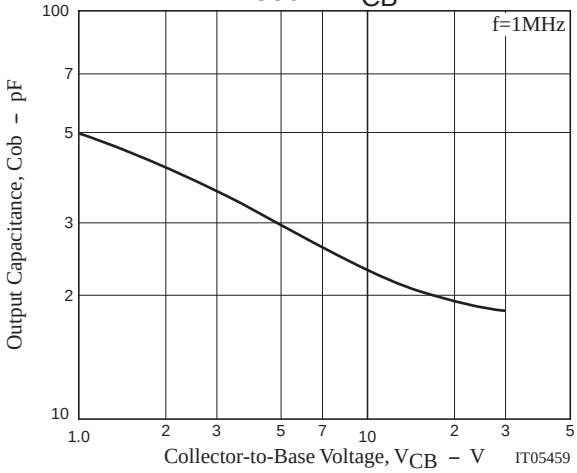
$V_{CE}(sat)$ – I_C



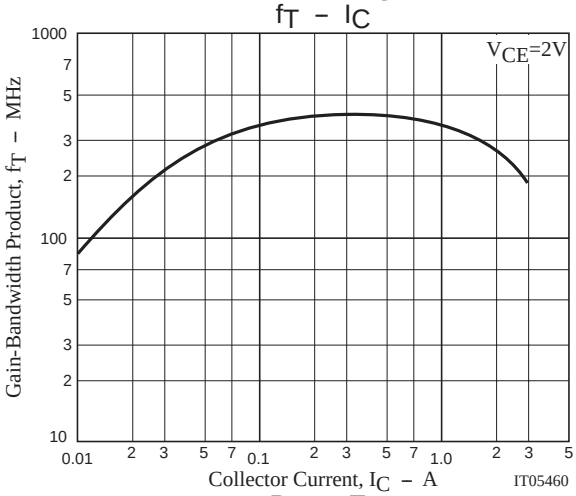
$V_{BE}(sat)$ – I_C



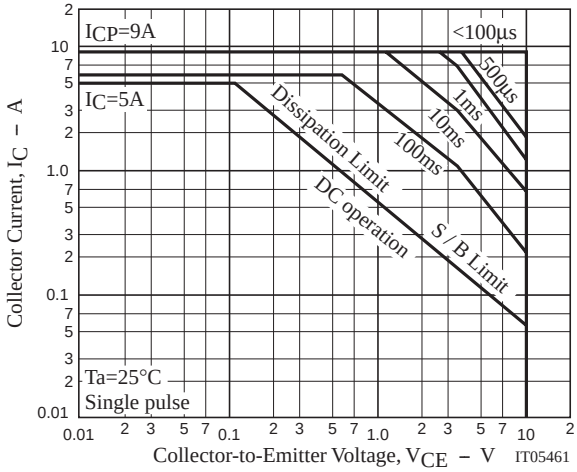
Cob – V_{CB}



f_T – I_C



A S O



P_C – Ta