UTC 2SC5569 NPN EPITAXIAL SILICON TRANSISTOR

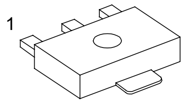
DC/DC CONVERTER APPLICATIONS

FEATURES

*High current capacitance.
*Low collector-to-emitter saturation voltage.
*High-speed switching.
*High allowable power dissipation.
*Complementary to 2SA2016.

APPLICATIONS

*Relay drivers, lamp drivers, motor drivers, strobes



SOT-89

1:EMITTER 2:COLLECTOR 3:BASE

ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	7	A
Collector Current (Pulse)	I_{CP}	10	A
Base Current	I_B	1.2	A
Collector Dissipation Tc=25℃	P_C	1.3* 3.5	W
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55 ~ +150	℃

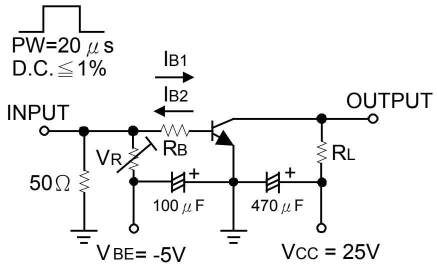
* Mounted on ceramic board (250mm^2×0.8mm)

ELECTRICAL CHARACTERISTICS (Ta=25℃, unless otherwise specified)

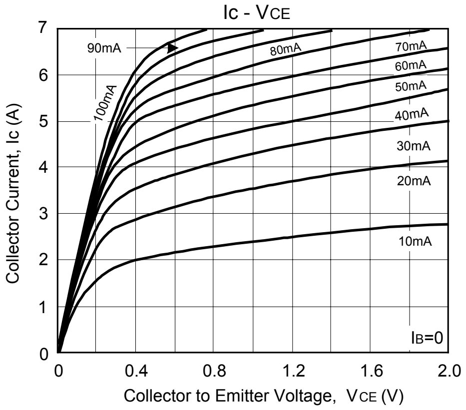
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	80			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_E=0$	6			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=40V, I_E=0$			0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=4V, I_C=0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=2V, I_C=500mA$	200		560	
Collector to Emitter Saturation Voltage	$V_{CE}(sat)$	$I_C=3.5A, I_B=175mA$		160	240	mV
		$I_C=2A, I_B=40mA$		110	170	mV
Base to Emitter Saturation Voltage	$V_{BE}(sat)$	$I_C=2A, I_B=40mA$		0.83	1.2	V
Gain Bandwidth Product	f_T	$V_{CE}=10V, I_C=500mA$		330		MHz
Output Capacitance	Cob	$V_{CB}=10V$, f=1MHz		28		pF
Turn-On Time	t_{on}	See specified Test Circuit		30		ns
Storage Time	t_{stg}	See specified Test Circuit		420		ns

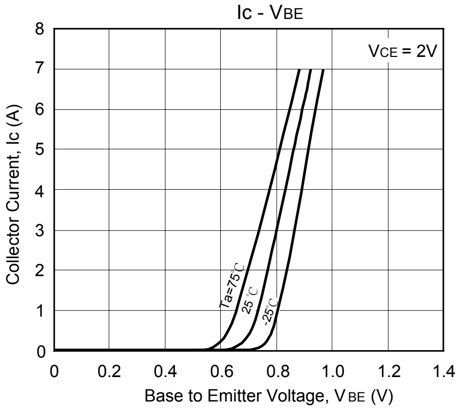
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Fall Time	t_f	See specified Test Circuit		25		ns

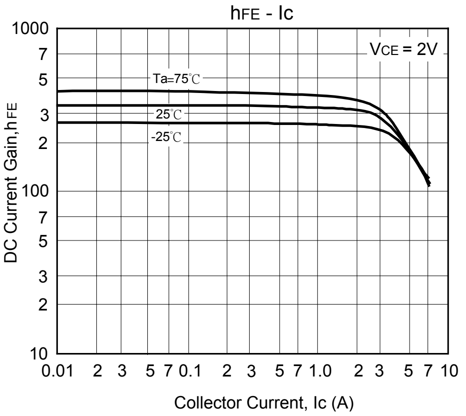
SWITCHING TIME TEST CIRCUIT

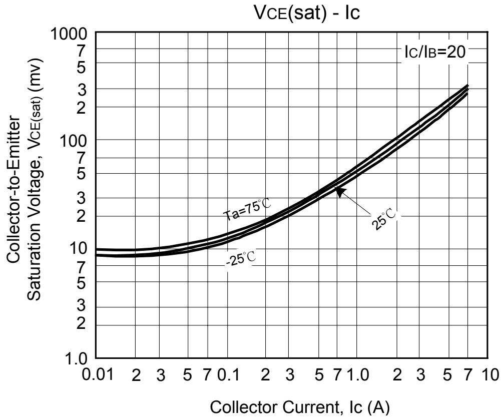


$20I_{B1}= -20I_{B2}=I_C=2.5A$

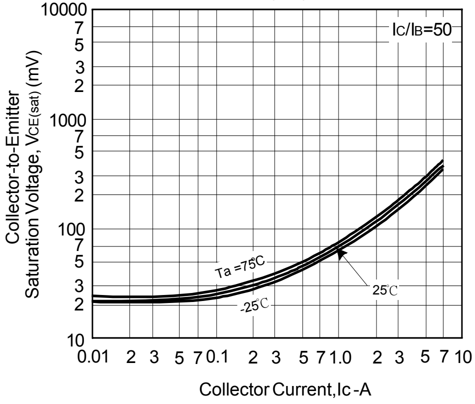




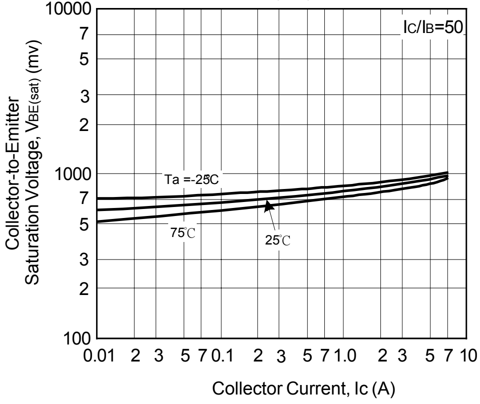




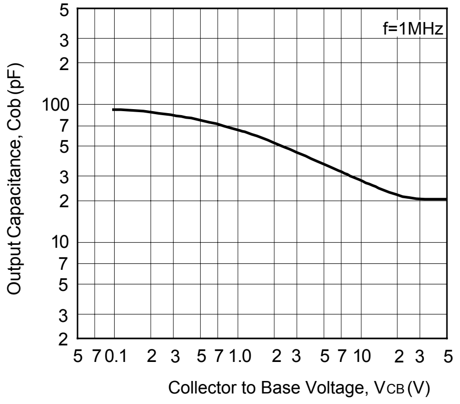
V_{CE}(sat) - Ic



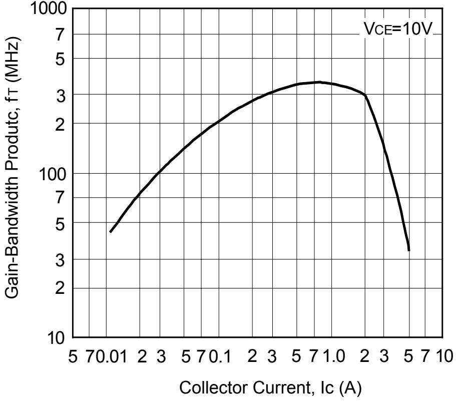
V_{BE}(sat) - Ic



Cob - V_{CB}



f_T - Ic



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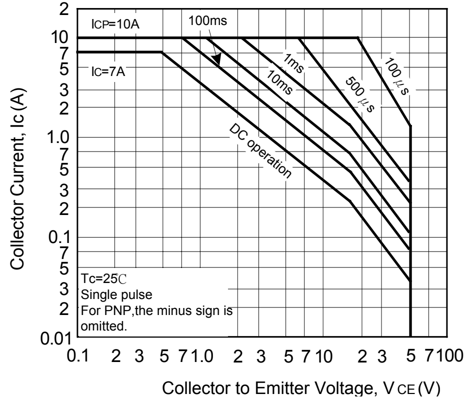
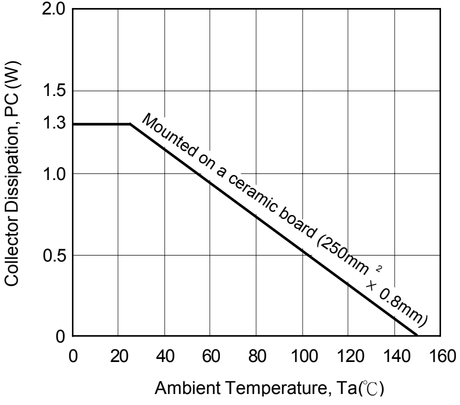
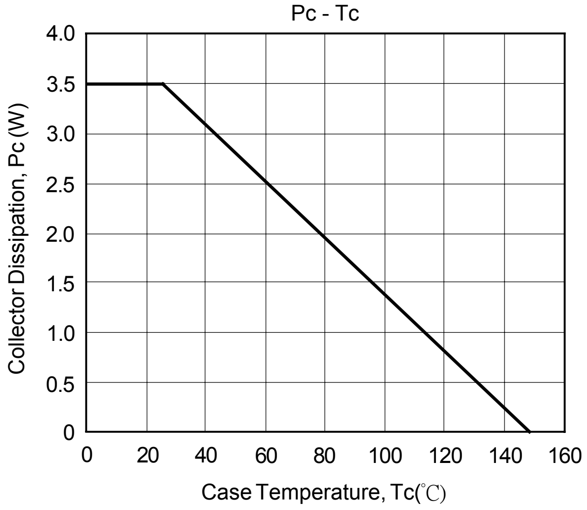


Pc - Ta




Pc - Tc
Collector Dissipation, Pc (W)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
0
20
40
60
80
100
120
140
160
Case Temperature, Tc(℃)