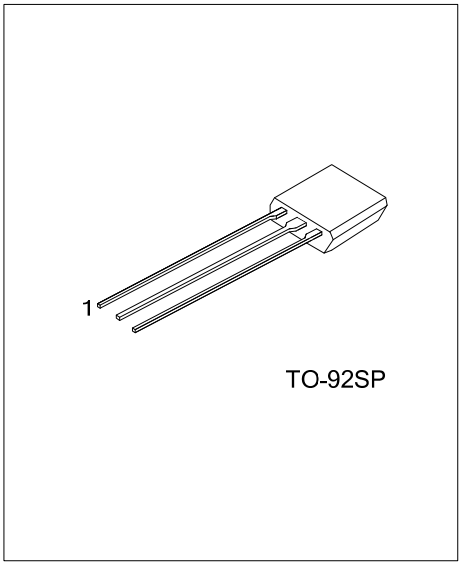
2SC5889

NPN EPITAXIAL SILICON TRANSISTOR

DC/DC CONVERTER APPLICATIONS



TO-92SP

■ FEATURES

*Large current capacitance
*Low collector-emitter saturation voltage
*High-speed switching
*High allowable power dissipation

■ APPLICATIONS

* relay drivers, lamp drivers, motor drivers, strobes

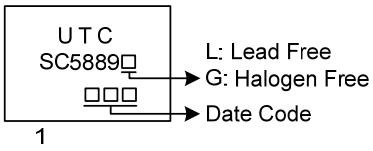
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SC5889L-T9S-K	2SC5889G-T9S-K	TO-92SP	E	C	B	Bulk

Note: Pin Assignment: E: Emitter C: Collector B: Base

2SC5889G-T9S-K (1)Packing Type (2)Package Type (3)Green Package	(1) K: Bulk (2) T9S: TO-92SP (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

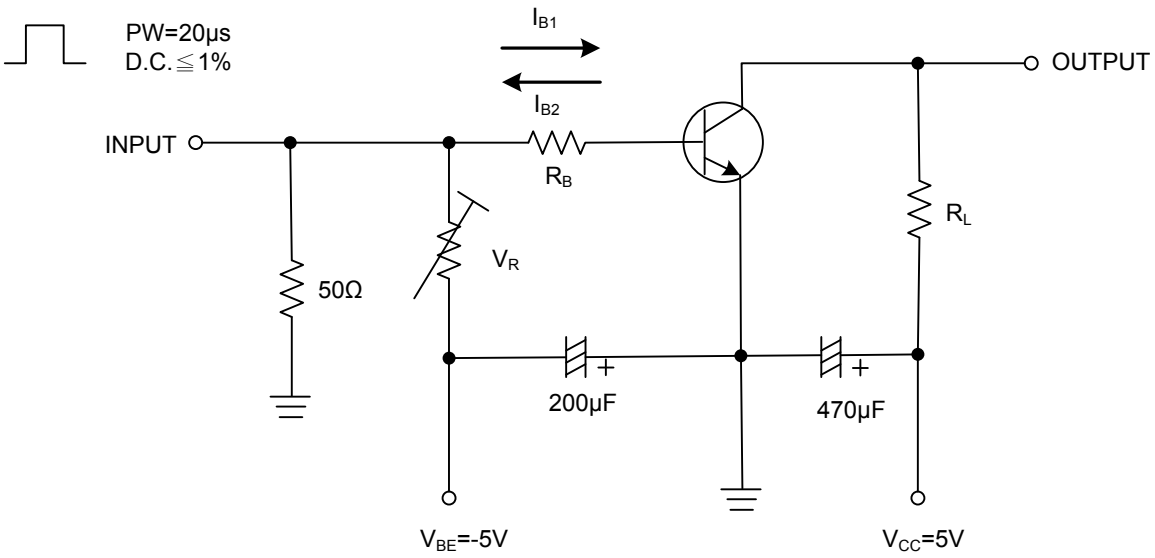
PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	15	V
Collector-Emitter Voltage		V_{CEO}	10	V
Emitter-Base Voltage		V_{EBO}	7	V
Base Current		I_B	1	A
Collector Current	DC	I_C	5	A
	Plused	I_{CP}	9	A
Collector Power Dissipation (Note 2)		P_C	550	mW
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Base Breakdown Voltage	BV_{CBO}	I_C=10μA, I_E= 0	15			V
Collector Emitter Breakdown Voltage	BV_{CEO}	I_C=-1mA, R_{BE}=∞	10			V
Emitter Base Breakdown Voltage	BV_{EBO}	I_E=10μA, I_C=0	7			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=10V, I_E=0			0.1	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain (Note)	$h_{FE\,1}$	V_{CE}=2V, I_C=500mA				
	h_{FE2}	V_{CE}=2V, I_C=3A				
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)1}$	I_C=1.5A, I_B=30mA		120	180	mV
	$V_{CE(SAT)2}$	I_C=3A, I_B=60mA		230	350	mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=1.5A, I_B=30mA		0.85	1.2	V
Gain Bandwidth Product	f_T	V_{CE}=2V, I_C=500mA		350		MHz
Collector Output Capacitance	Cob	V_{CB}=10V, I_E= 0, f=1MHz		25		pF
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

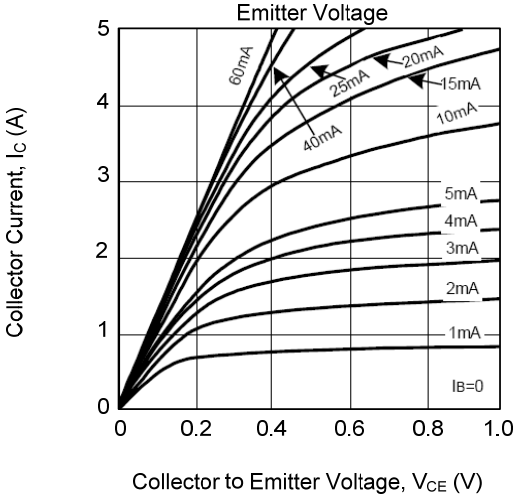
■ SWITCHING TIME TEST CIRCUIT



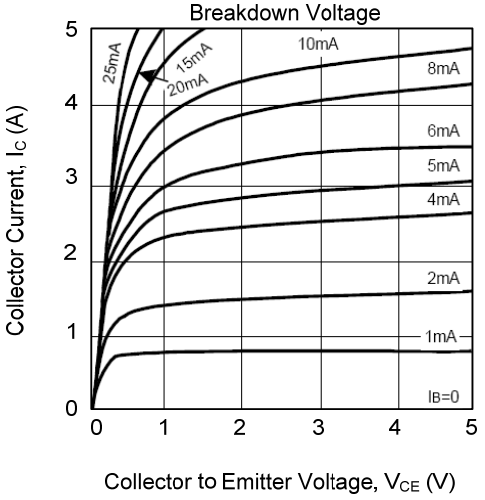
$20I_{B1}=-20I_{B2}=I_C=1.5A$

■ TYPICAL CHARACTERISTICS

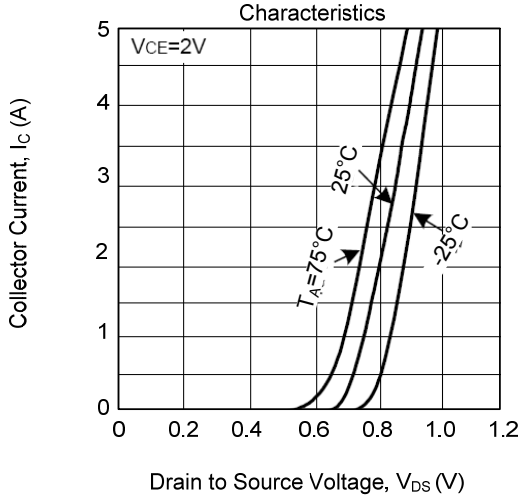
Collector Current vs. Collector to Emitter Voltage



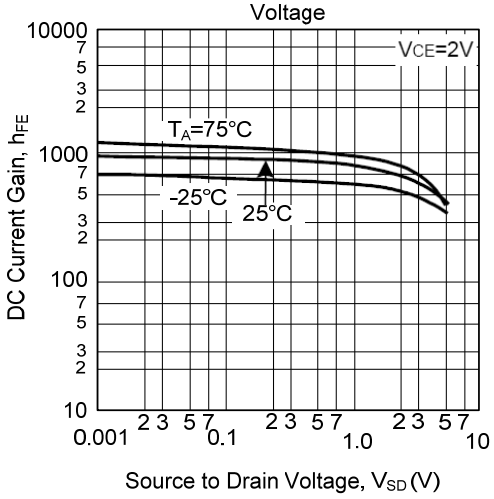
Drain Current vs. Drain-Source Breakdown Voltage



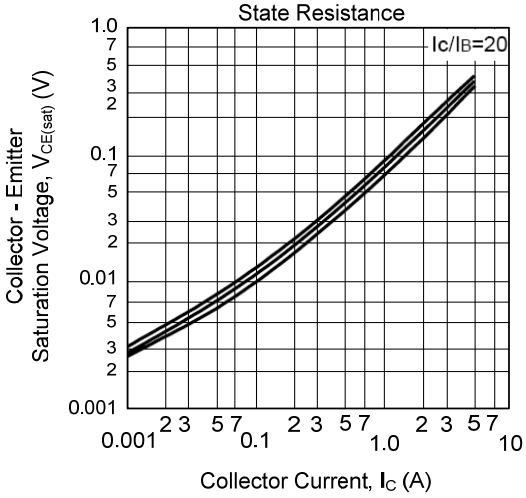
Drain-Source On-State Resistance Characteristics



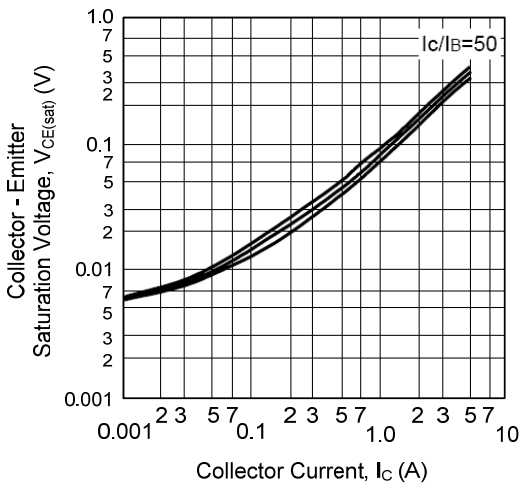
Drain Current vs. Source to Drain Voltage



Drain Current vs. Drain-Source On-State Resistance

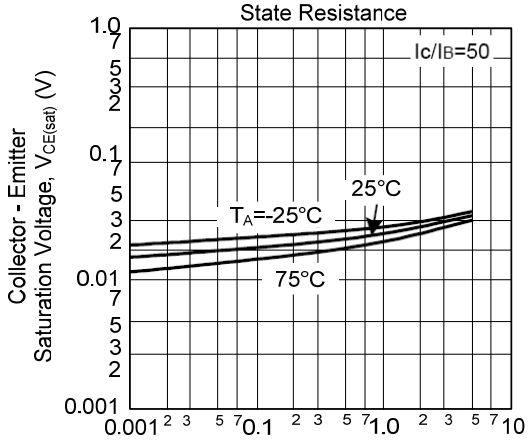


On-State Characteristics

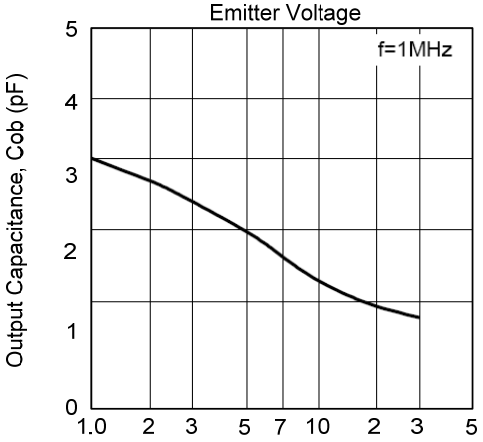


■ TYPICAL CHARACTERISTICS (Cont.)

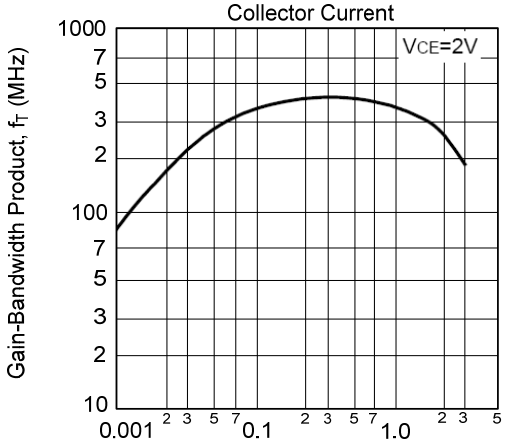
Drain Current vs. Drain-Source On-State Resistance



Output Capacitance vs. Collector to Emitter Voltage



Gain-Bandwidth Product vs. Collector Current



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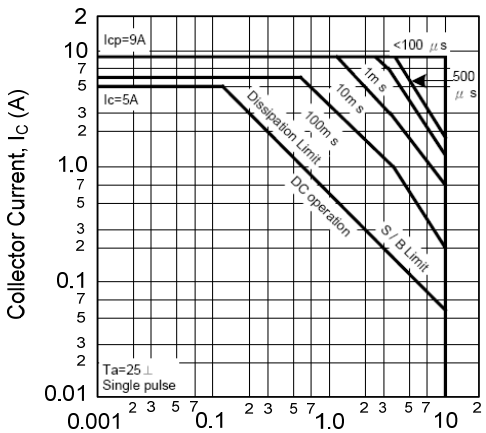

Drain Current vs. Drain-Source On-State Resistance