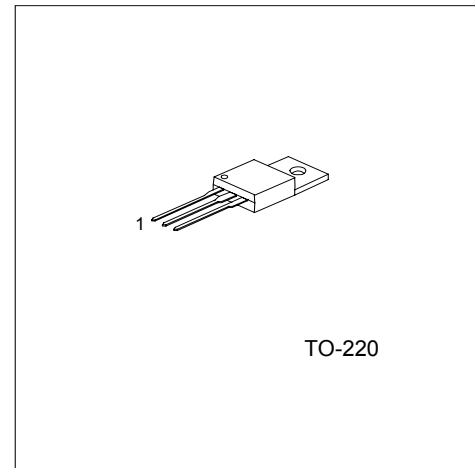


HIGH VOLTAGE HIGH SPEED POWER  
SWITCHING TRANSISTOR

## FEATURES

- \* High hFE for Low base drive requirement
- \* Suitable for half bridge light ballast Applications
- \* Built-in Free-wheeling Diode makes it specially suitable for light ballast Applications
- \* Well controlled storage-time spread for all range of hFE



TO-220

1: Base 2: Collector 3: Emitter

\*Pb-free plating product number: 2SC5305L

## ABSOLUTE MAXIMUM RATINGS

(T<sub>C</sub>=25°C, unless otherwise noted.)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector Base Voltage	V <sub>CB0</sub>	800	V
Collector Emitter Voltage	V <sub>CEO</sub>	400	V
Emitter Base Voltage	V <sub>EBO</sub>	12	V
Collector Current (DC)	I <sub>C</sub>	5	A
Collector Current (Pulse)*	I <sub>CP</sub>	10	A
Base Current (DC)	I <sub>B</sub>	2	A
Base Current (Pulse)*	I <sub>BP</sub>	4	A
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>C</sub>	75	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-65 ~ 150	°C

## THERMAL CHARACTERISTICS

(T<sub>C</sub>=25°C, unless otherwise noted.)

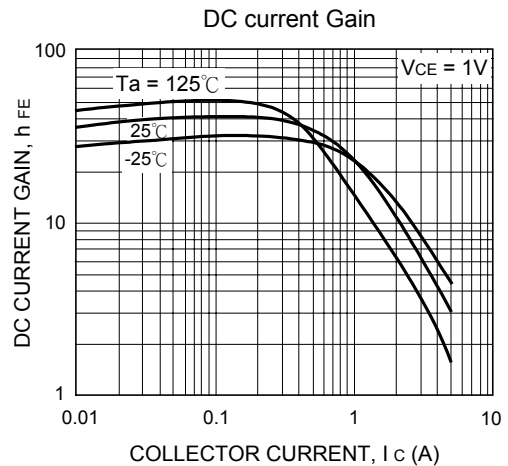
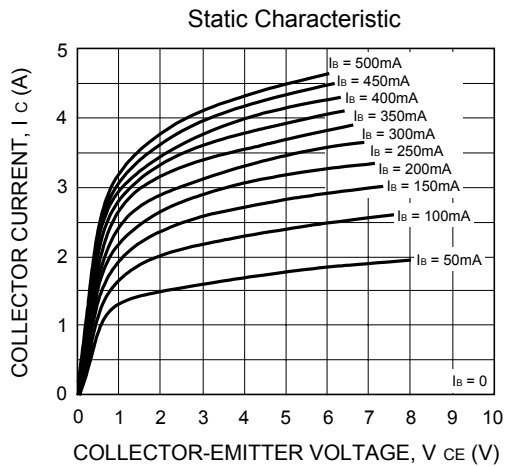
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance			
Junction to Case	R <sub>θJC</sub>	1.65	°C/W
Junction to Ambient	R <sub>θJA</sub>	62.5	

**ELECTRICAL CHARACTERISTICS**

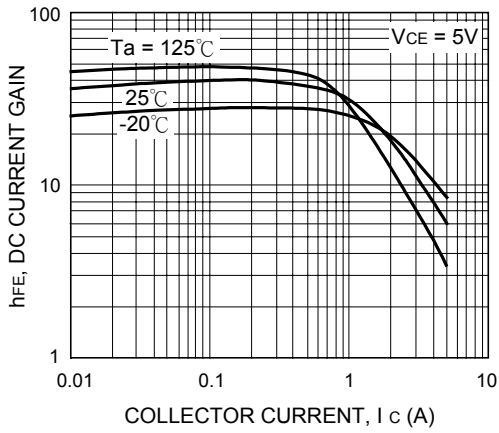
(T<sub>C</sub>=25°C, unless otherwise noted.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	I <sub>C</sub> = 1mA, I <sub>E</sub> = 0	800			V
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> = 5mA, I <sub>B</sub> = 0	400			V
Emitter Cut-off Current	BV <sub>EBO</sub>	I <sub>E</sub> =1mA, I <sub>C</sub> =0	12			V
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> =500V, I <sub>E</sub> =0			10	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 9V, I <sub>C</sub> = 0			10	μA
DC Current Gain	h <sub>FE1</sub> h <sub>FE2</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =0.8A	22			
		V <sub>CE</sub> =1V, I <sub>C</sub> =2A	8			
Collector-Emitter Saturation Voltage	V <sub>CE (sat)</sub>	I <sub>C</sub> =0.8A, I <sub>B</sub> =0.08A			0.4	V
		I <sub>C</sub> =2A, I <sub>B</sub> =0.4A			0.5	V
Base-Emitter Saturation Voltage	V <sub>BE (sat)</sub>	I <sub>C</sub> =0.8A, I <sub>B</sub> =0.08A			1.0	V
		I <sub>C</sub> =2A, I <sub>B</sub> =0.4A			1.0	V
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, f=1MHz			75	pF
Turn ON Time	t <sub>ON</sub>	V <sub>CC</sub> =300V, I <sub>C</sub> =2A			150	ns
Storage Time	t <sub>STG</sub>	I <sub>B1</sub> = 0.4A, I <sub>B2</sub> =-1A R <sub>L</sub> = 150Ω			2	μs
Fall Time	t <sub>F</sub>				0.2	μs
Storage Time	t <sub>STG</sub>		V <sub>CC</sub> =15V, V <sub>Z</sub> =300V			2.25
Fall Time	t <sub>F</sub>	I <sub>C</sub> = 2A, I <sub>B1</sub> = 0.4A			150	ns
		I <sub>B2</sub> = -0.4A, L <sub>C</sub> =200μH				
Diode Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 1A			1.5	V
		I <sub>F</sub> = 2A			1.6	V
Reverse recovery time* (di/dt =10A/μs)	t <sub>rr</sub>	I <sub>F</sub> = 0.4A		800		ns
		I <sub>F</sub> = 1A		1.4		μs
		I <sub>F</sub> = 2A		1.9		μs

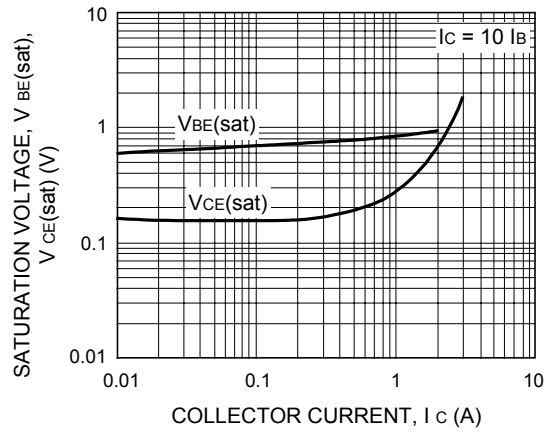
\*Pulse Test : Pulse Width=5mS, Duty cycles ≤ 10%



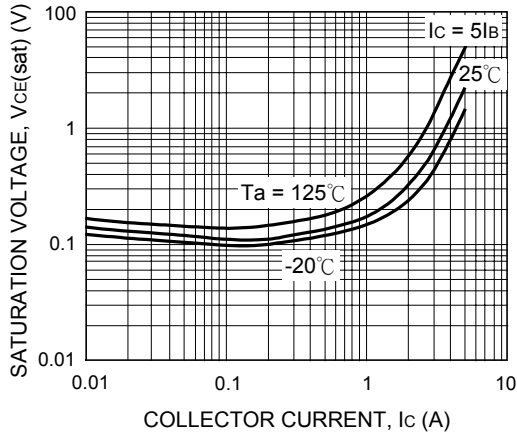
DC current Gain



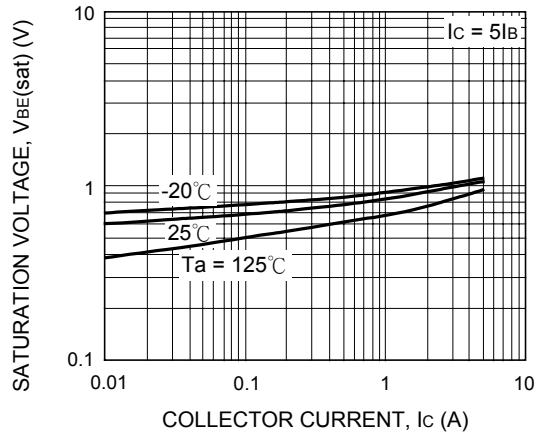
Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage



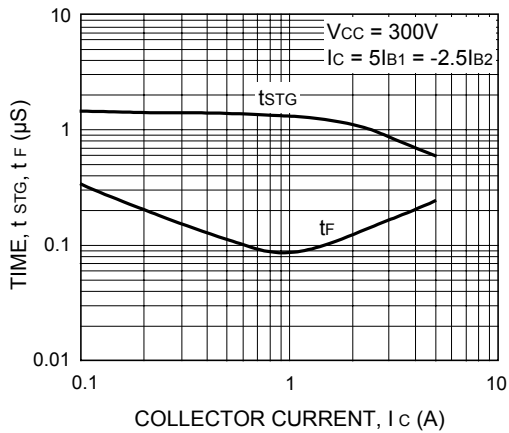
Collector-Emitter Saturation Voltage



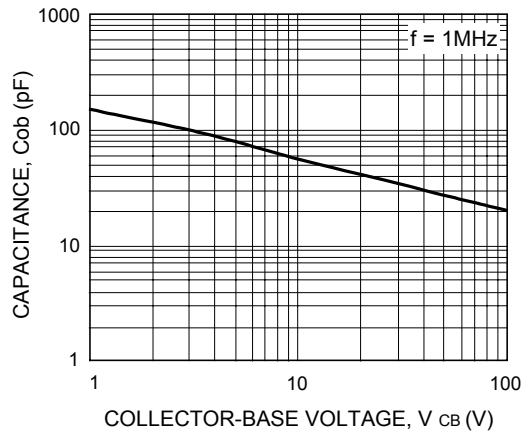
Base-Emitter Saturation Voltage

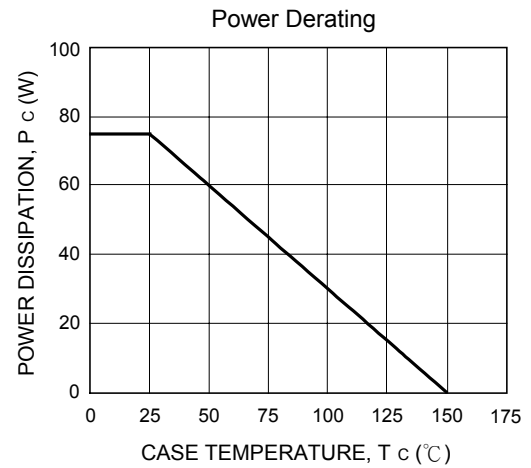
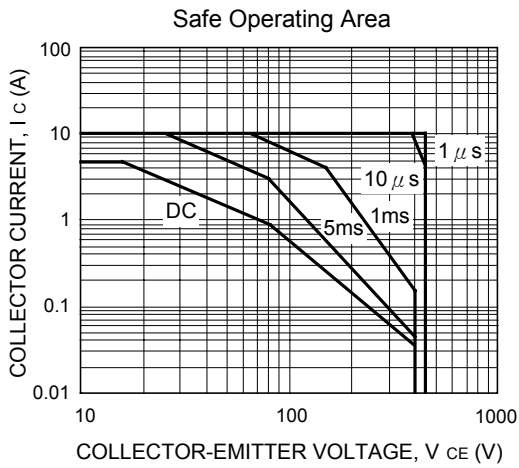
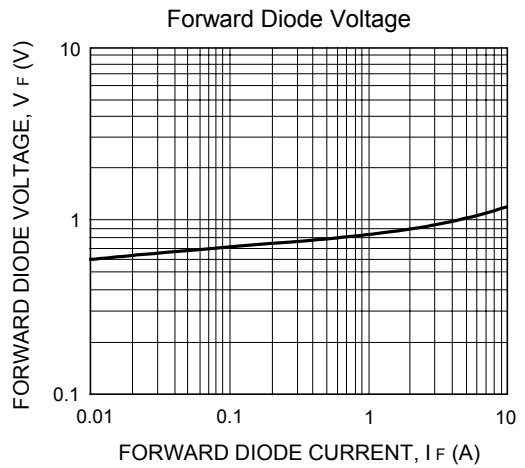
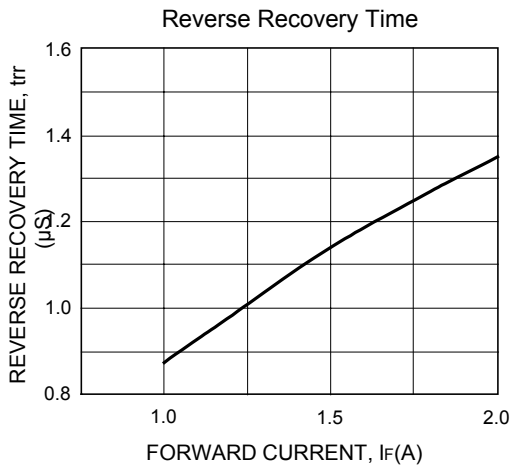


Switching Time



Collector Output Capacitance





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