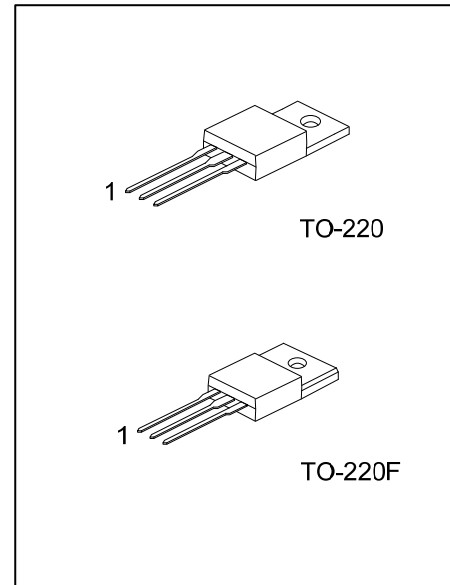




**2SC5305**

**NPN EPITAXIAL SILICON TRANSISTOR**

**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

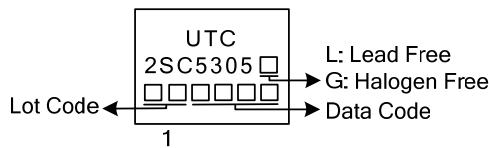
■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SC5305L-TA3-T	2SC5305G-TA3-T	TO-220	B	C	E	Tube
2SC5305L-TF3-T	2SC5305G-TF3-T	TO-220F	B	C	E	Tube

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

<p>2SC5305G-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220, TF3: TO-220F</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ **MARKING**



■ ABSOLUTE MAXIMUM RATING ( $T_C=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector Base Voltage	$V_{CBO}$	800	V
Collector Emitter Voltage	$V_{CEO}$	400	V
Emitter Base Voltage	$V_{EBO}$	12	V
Collector Current (DC)	$I_C$	5	A
Collector Current (Pulse)*	$I_{CP}$	10	A
Base Current (DC)	$I_B$	2	A
Base Current (Pulse)*	$I_{BP}$	4	A
Power Dissipation	$P_C$	75	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

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.

■ THERMAL DATA ( $T_C=25^\circ\text{C}$ , unless otherwise specified)

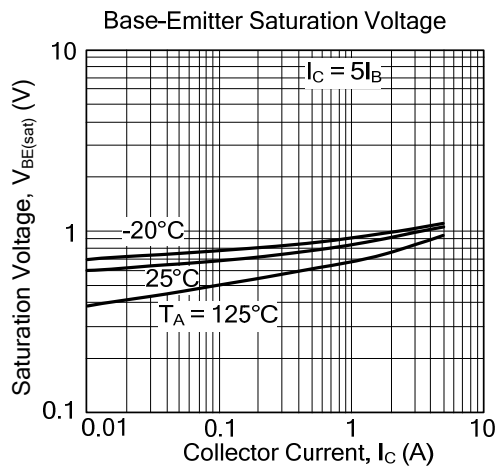
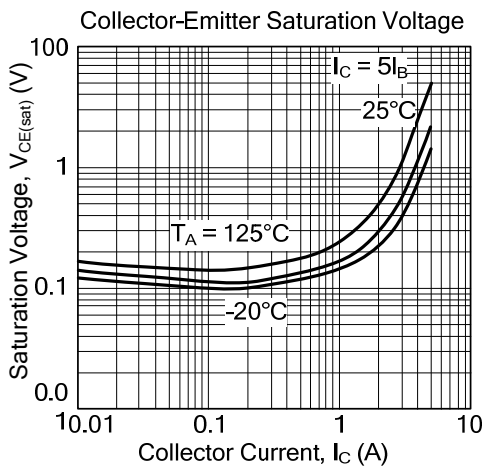
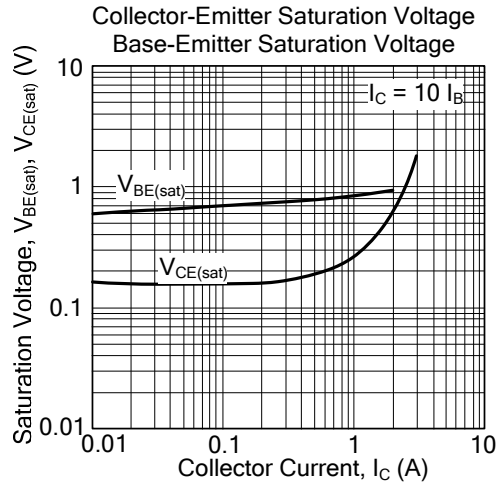
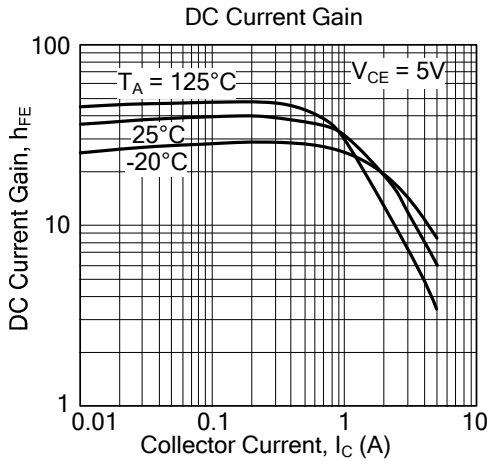
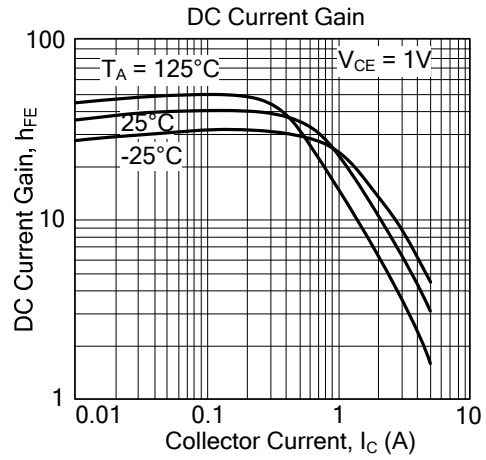
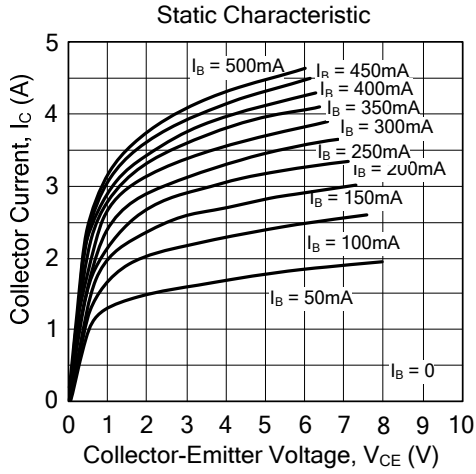
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	62.5	$^\circ\text{C}/\text{W}$
Junction to Case	TO-220	1.65	$^\circ\text{C}/\text{W}$
	TO-220F	3.12	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ , unless otherwise specified)

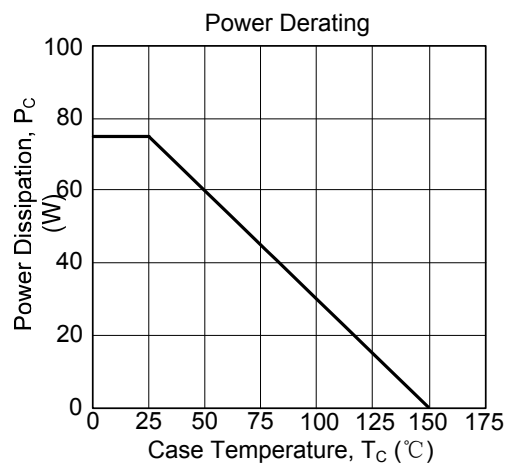
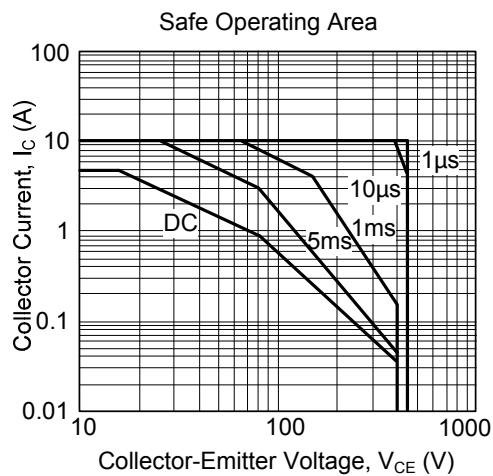
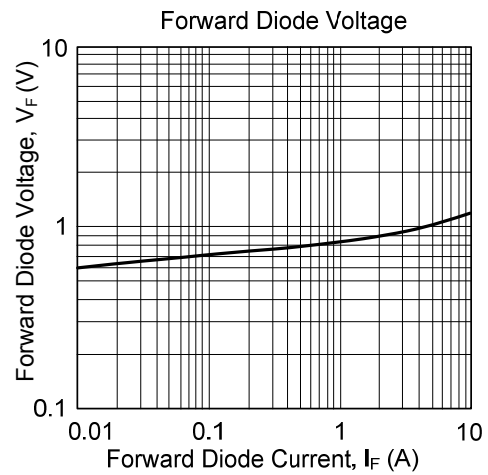
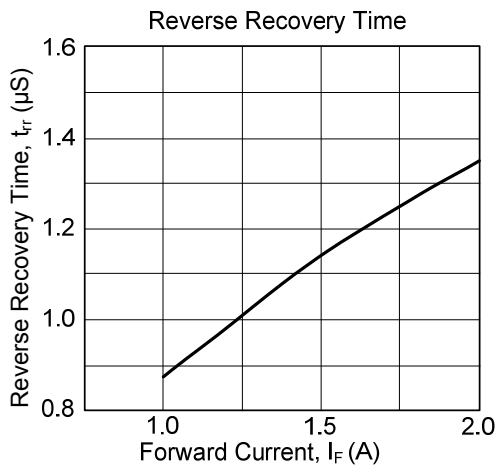
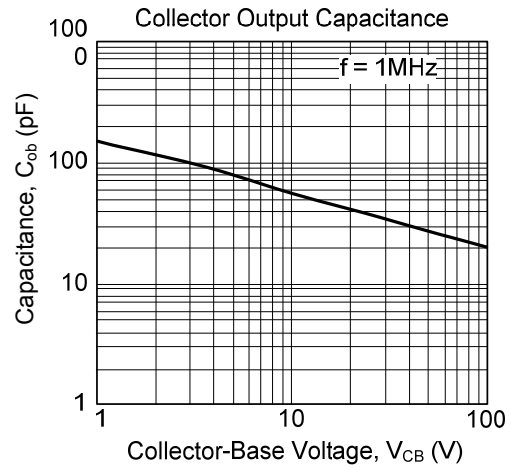
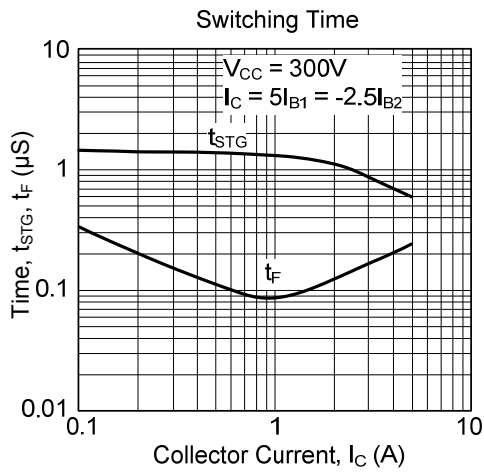
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C = 1\text{mA}, I_E = 0$	800			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = 5\text{mA}, I_B = 0$	400			V
Emitter Cut-off Current	$BV_{EBO}$	$I_E = 1\text{mA}, I_C = 0$	12			V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 500\text{V}, I_E = 0$			10	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 9\text{V}, I_C = 0$			10	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE} = 1\text{V}, I_C = 0.8\text{A}$	22			
	$h_{FE2}$	$V_{CE} = 1\text{V}, I_C = 2\text{A}$	8			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 0.8\text{A}, I_B = 0.08\text{A}$			0.4	V
		$I_C = 2\text{A}, I_B = 0.4\text{A}$			0.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 0.8\text{A}, I_B = 0.08\text{A}$			1.0	V
		$I_C = 2\text{A}, I_B = 0.4\text{A}$			1.0	V
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$			75	pF
Turn ON Time	$t_{ON}$	$V_{CC} = 300\text{V}, I_C = 2.0\text{A}$			150	ns
Storage Time	$t_{STG}$	$I_{B1} = 0.4\text{A}, I_{B2} = -1.0\text{A}$			2	$\mu\text{s}$
Fall Time	$t_F$	$R_L = 150\Omega$			0.2	$\mu\text{s}$
Storage Time	$t_{STG}$	$V_{CC} = 15\text{V}, V_Z = 300\text{V}$			2.25	$\mu\text{s}$
Fall Time	$t_F$	$I_C = 2\text{A}, I_{B1} = 0.4\text{A}$ $I_{B2} = -0.4\text{A}, L_C = 200\mu\text{H}$			150	ns
Diode Forward Voltage	$V_F$	$I_F = 1\text{A}$			1.5	V
		$I_F = 2\text{A}$			1.6	V
Reverse recovery time (Note) ( $di/dt = 10\text{A}/\mu\text{s}$ )	$t_{rr}$	$I_F = 0.4\text{A}$		800		ns
		$I_F = 1\text{A}$		1.4		$\mu\text{s}$
		$I_F = 2\text{A}$		1.9		$\mu\text{s}$

Note: Pulse Test : Pulse Width=5mS, Duty cycles  $\leq 10\%$ .

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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