

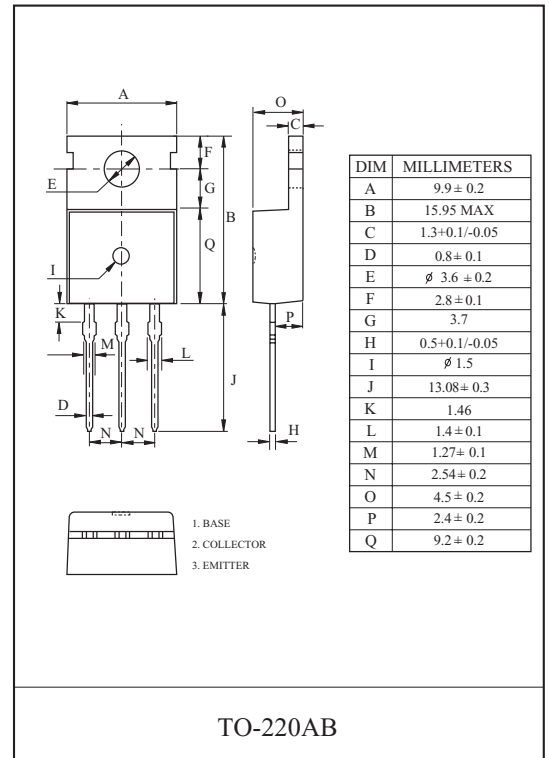
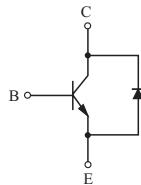
HIGH VOLTAGE HIGH SPEED POWER SWITCH APPLICATION.

- Built-in Free wheeling Diode makes efficient anti saturation operation.
- Suitable for half bridge light ballast Applications.
- Low base drive requirement.

MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	800	V
Collector-Emitter Voltage		V_{CEO}	400	V
Emitter-Base Voltage		V_{EBO}	10	V
Collector Current	DC	I_C	5	A
	Pulse	I_{CP}	10	
Base Current		I_B	2	A
Collector Power Dissipation (Tc=25 °C)		P_C	75	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55 ~ 150	°C

Equivalent Circuit



ELECTRICAL CHARACTERISTICS (Ta=25 °C)

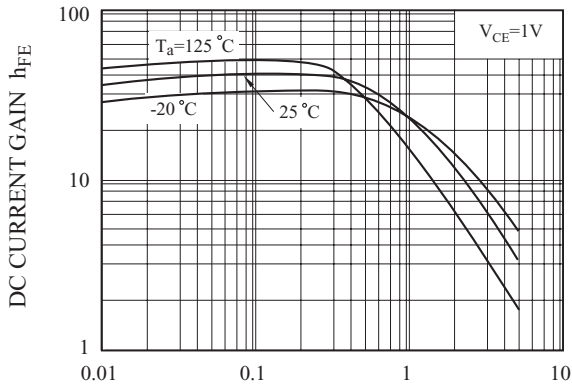
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter Cut-off Current	I_{EBO}	$V_{EB}=9V, I_C=0$	-	-	10	μA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=5V, I_C=1A$	18	-	35	
	$h_{FE}(2)$	$V_{CE}=5V, I_C=2A$	8	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5A, I_B=0.1A$	-	-	0.5	V
		$I_C=2A, I_B=0.5A$	-	-	0.6	
		$I_C=4A, I_B=1A$	-	-	1	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1A, I_B=0.2A$	-	-	-	V
		$I_C=2A, I_B=0.5A$	-	-	1.6	
Collector Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$	-	65	-	pF
Transition Frequency	f_T	$V_{CE}=10V, I_C=0.5A$	4	-	-	MHz
Turn-On Time	t_{on}	<p>$I_{B1}=0.4A, I_{B2}=-1A$ DUTY CYCLE ≤ 2%</p>	-	-	0.15	μs
Storage Time	t_{stg}		2	-	5	μs
Fall Time	t_f		-	-	0.8	μs
Diode Forward Voltage	V_F	$I_F=2A$	-	-	1.6	V
*Reverse recovery time (di/dt=10A/μs)	t_{rr}	$I_F=0.4A$	-	800	-	nS
		$I_F=1A$	-	1.4	-	μs
		$I_F=2A$	-	1.9	-	μs
			-	-	-	-

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

Note : h_{FE} Classification R : 18~27, O : 23~35

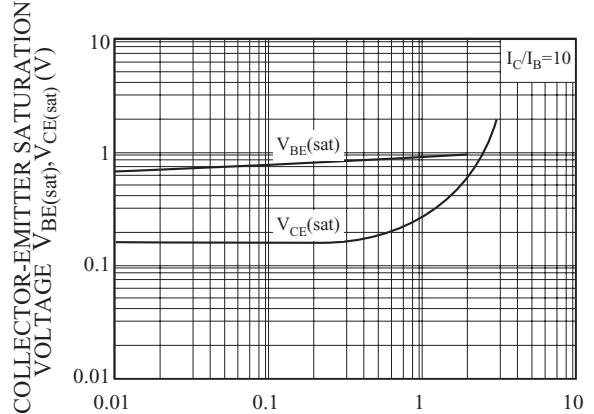
MJE13005D

$h_{FE} - I_C$



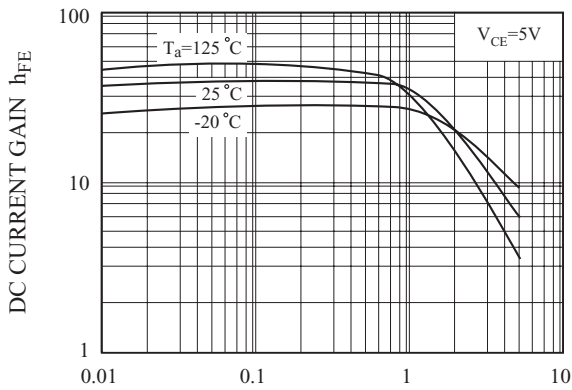
COLLECTOR CURRENT I_C (A)

$V_{BE(sat)}, V_{CE(sat)} - I_C$



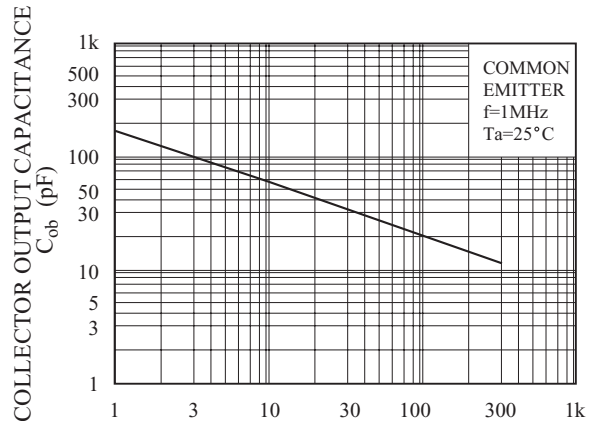
COLLECTOR CURRENT I_C (A)

$h_{FE} - I_C$



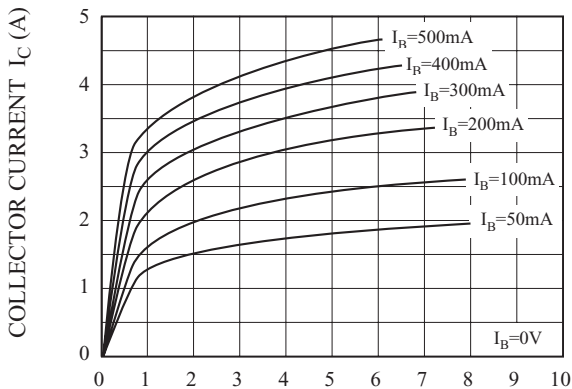
COLLECTOR CURRENT I_C (A)

$C_{ob} - V_{CB}$



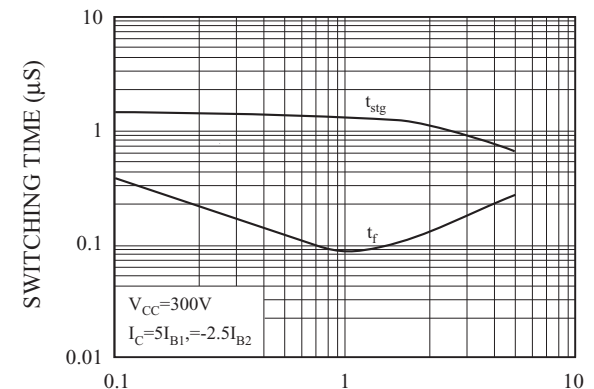
COLLECTOR-BASE VOLTAGE V_{CB} (V)

$I_C - V_{CE}$



COLLECTOR EMITTER VOLTAGE V_{CE} (V)

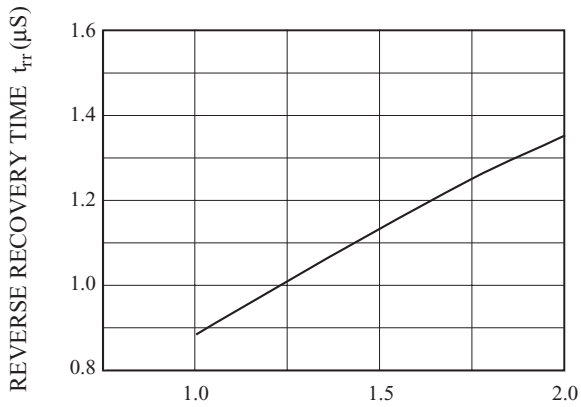
SWITCHING CHARACTERISTIC



COLLECTOR CURRENT I_C (A)

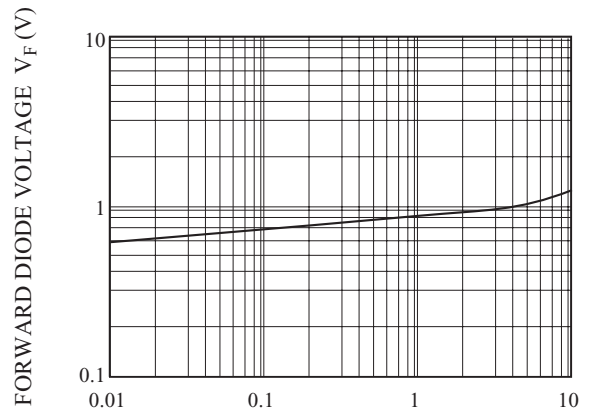
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$t_{rr} - I_F$



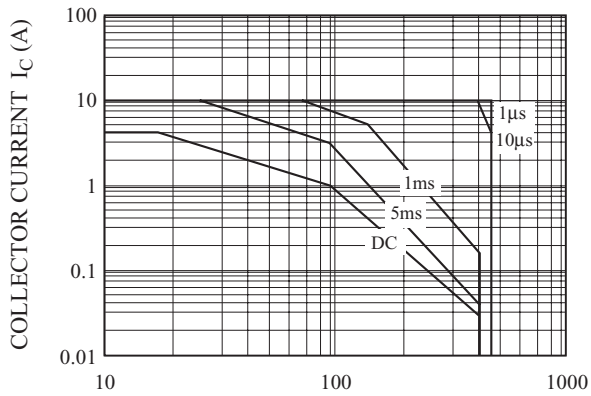
FORWARD CURRENT I_F (A)

$V_F - I_F$



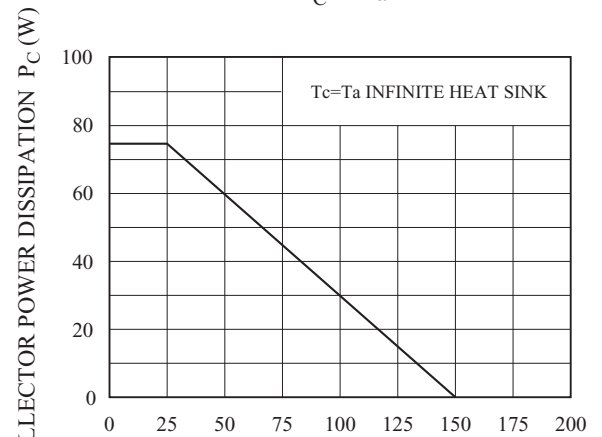
FORWARD DIODE CURRENT I_F (A)

SAFE OPERATING AREA



COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

$P_C - T_a$



AMBIENT TEMPERATURE T_a ($^{\circ}\text{C}$)