



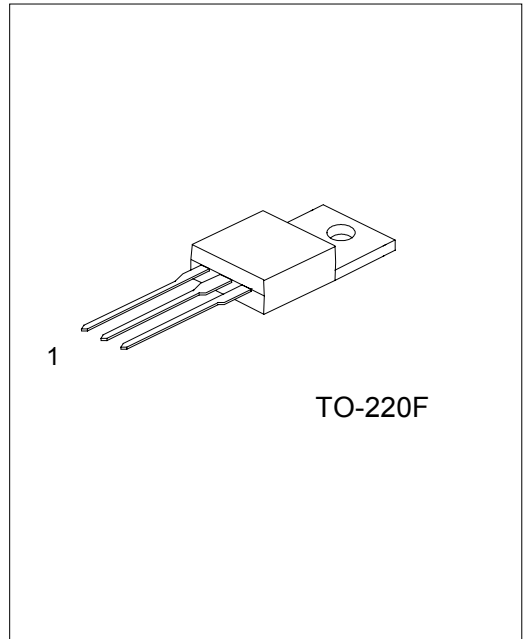
# MJE13011

## NPN EPITAXIAL SILICON TRANSISTOR

HIGH VOLTAGE HIGH SPEED SWITCHING

■ FEATURES

- \* High voltage, high speed switching
- \* High reliability



\*Pb-free plating product number: MJE13011L

■ PIN CONFIGURATION

[www.DataSheet4U.com](http://www.DataSheet4U.com)

PIN NO.	PIN NAME
1	BASE
2	COLLECTOR
3	EMITTER

■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead Free Plating		
MJE13011-TF3-T	MJE13011L-TF3-T	TO-220F	Tube

■ ABSOLUTE MAXIMUM RATINGS ( $T_C = 25$  )

PARAMETER	SYMBOL	RATINGS	UNIT
Collector Base Voltage	$V_{CBO}$	450	V
Collector Emitter Voltage	$V_{CEO}$	400	V
	$V_{CEO(SUS)}$	400	V
Emitter Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	10	A
Base Current	$I_B$	3	A
Power Dissipation	$P_D$	80	W
Junction Temperature	$T_J$	+150	
Storage Temperature	$T_{STG}$	-40 ~ +150	

■ ELECTRICAL SPECIFICATIONS ( $T_C = 25$  , Unless Otherwise Specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Base Voltage	$V_{CBO}$	$I_{CBO} = 1mA$	450			V
Collector Emitter Voltage	$V_{CEO}$	$I_{CEO} = 10mA$	400			V
	$V_{CEO(SUS)}$	$I_C = 1A$	400			V
Emitter Base Voltage	$V_{EBO}$	$I_{EBO} = 0.1mA$	7			V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 4A, I_B = 0.8A$			1.2	V
Base Emitter Saturation Voltage	$V_{BE(SAT)}$				1.5	V
Collector Cut-off Current	$I_{CBO}$	$V_{CBO} = 450V$			1.0	mA
Emitter Cut-off Current	$I_{EBO}$	$V_{EBO} = 7V$			0.1	mA
DC Current Gain	$h_{FE}$	$I_C = 4A, V_{CE} = 5V$	10			
Switching Time	$t_{ON}$	$I_C = 7.5A, I_{B1} = -I_{B2} = 1.5A$ $R_L = 20\Omega, P_w = 20\mu s, Duty \leq 2\%$			1.0	$\mu s$
	$t_{STG}$				2.0	$\mu s$
	$t_F$				1.0	$\mu s$

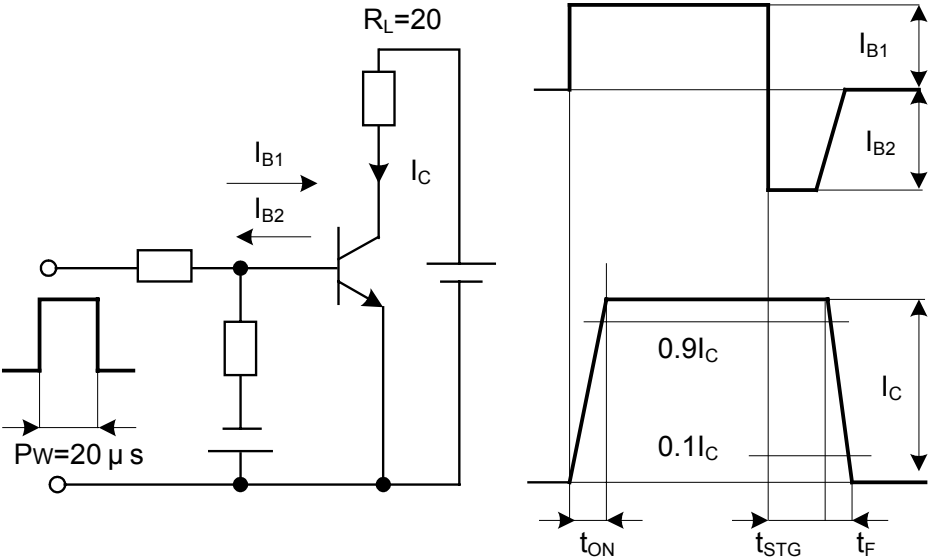
■ CLASSIFICATION of  $h_{FE}$

RANK	A	B	C	D	E	F
RANGE	10 ~ 16	15 ~ 21	20 ~ 26	25 ~ 31	30 ~ 36	35 ~ 40

■ THERMAL DATA

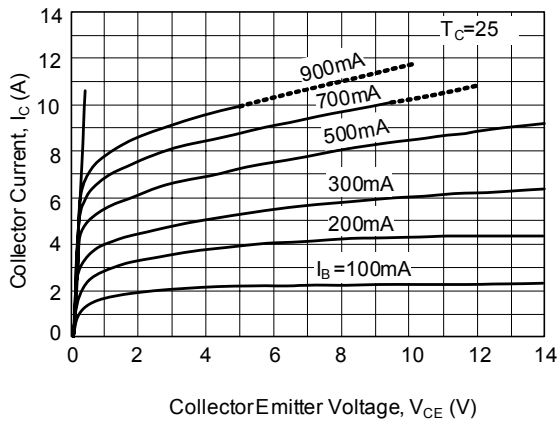
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Case	$\theta_{JC}$	4	/W

SWITCHING TIME TEST CIRCUIT

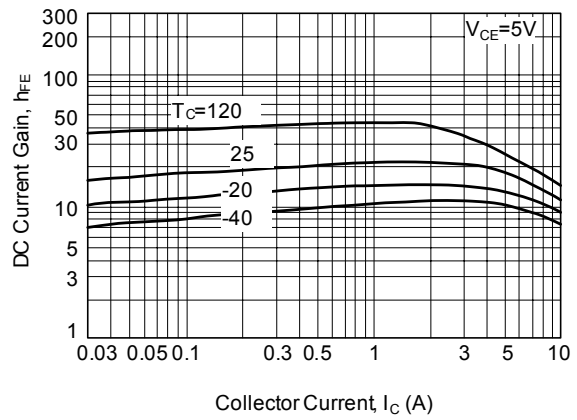


## TYPICAL CHARACTERISTICS

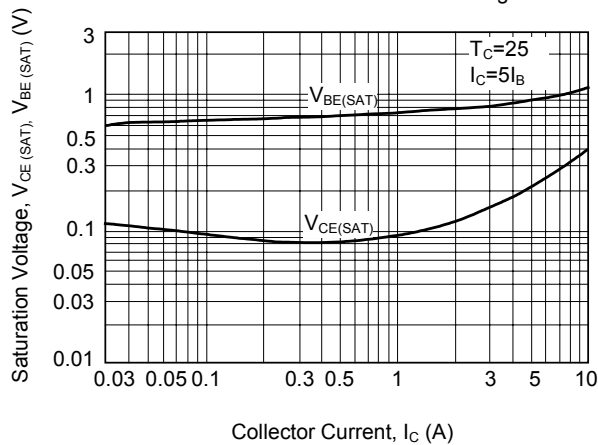
Collector Output Characteristics



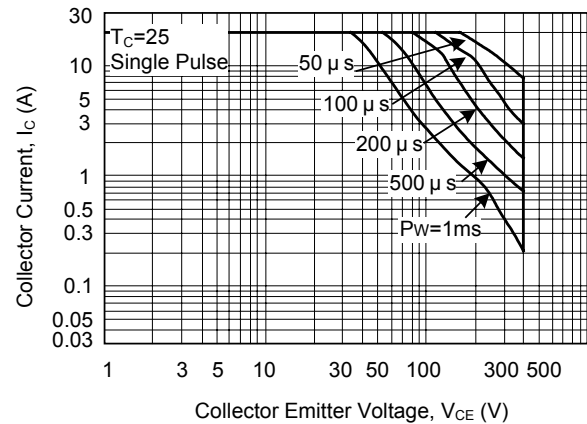
DC Current Gain



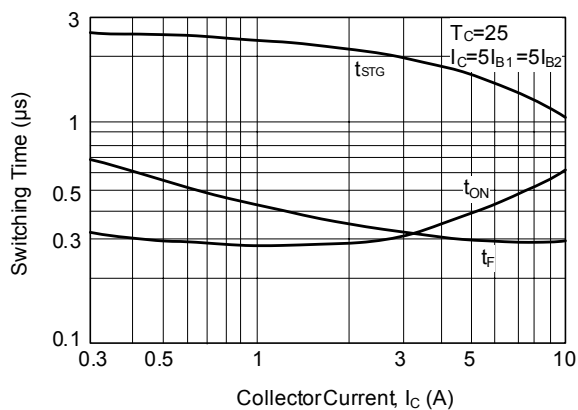
Base and Collector Saturation Voltage



Safe Operating Area



Switching Time



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