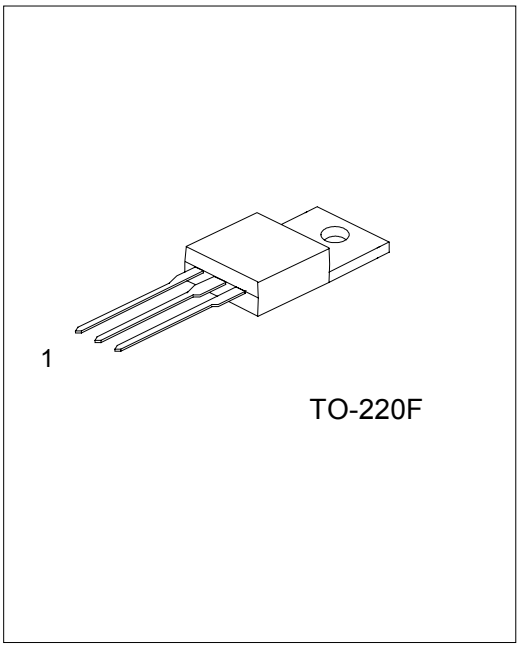
MJE13011

NPN EPITAXIAL SILICON TRANSISTOR

HIGH VOLTAGE HIGH SPEED SWITCHING



*Pb-free plating product number: MJE13011L

■ FEATURES

* High voltage, high speed switching
* High reliability

■ PIN CONFIGURATION

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=20Ω, Pw=20μs, Duty ≤ 2%			1.0	μs
	t_{STG}				2.0	μs
	t_F				1.0	μs

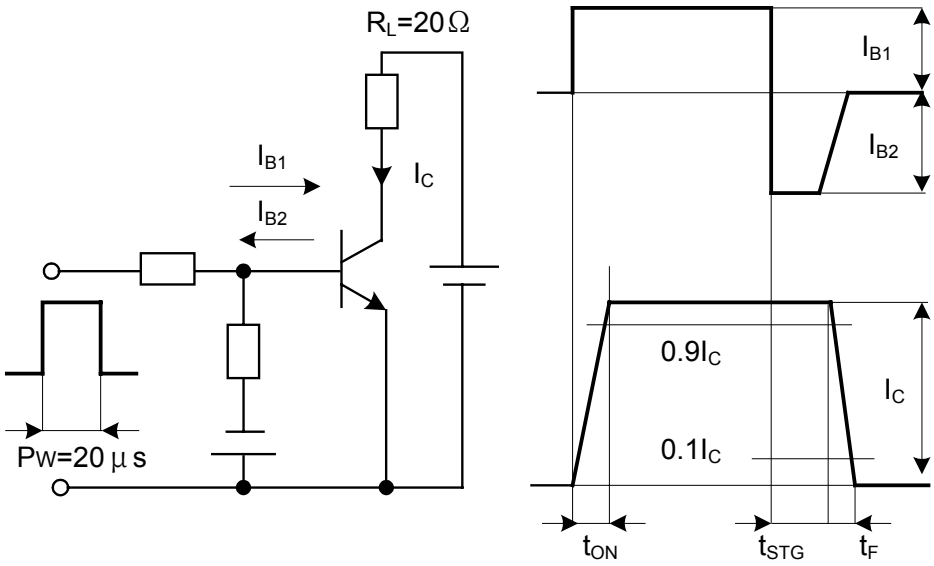
■ CLASSIFICATION of h_{FE}

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

■ THERMAL DATA

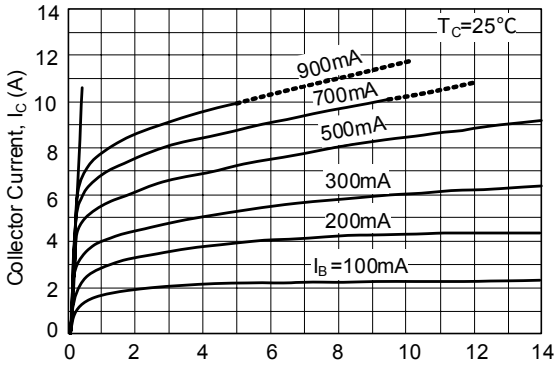
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Case	θ_{JC}	4	°C/W

■ SWITCHING TIME TEST CIRCUIT

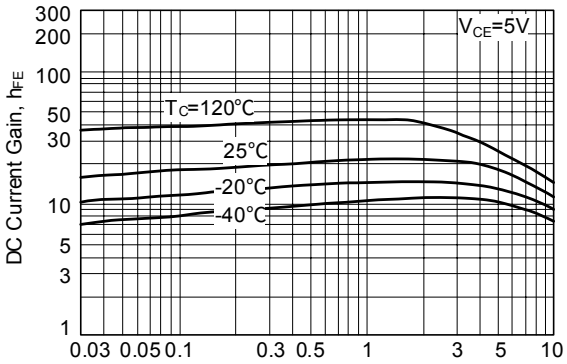


■ TYPICAL CHARACTERISTICS

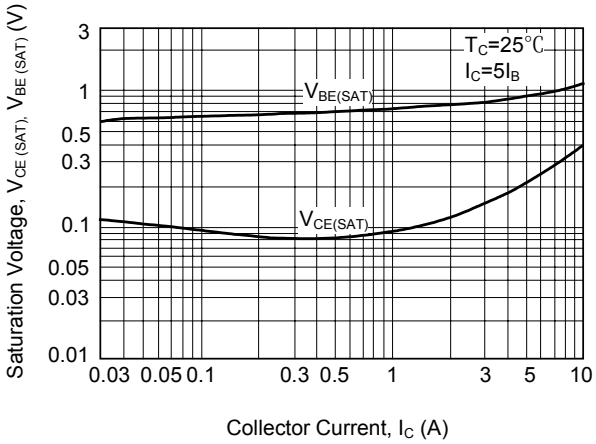
Collector Output Characteristics



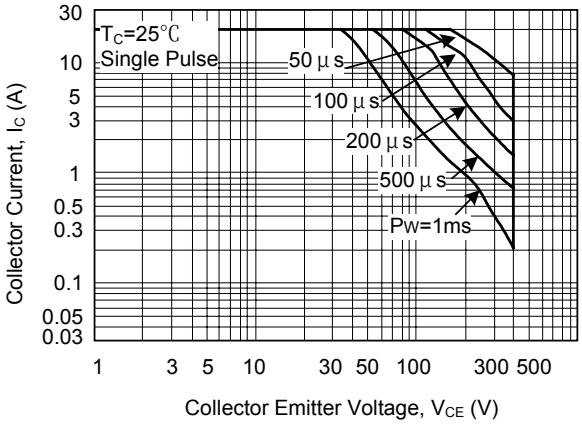
DC Current Gain



Base and Collector Saturation Voltage



Safe Operating Area



Switching Time