NPN MJE13005
SILICON PLASTIC POWER TRANSISTOR

...suited for 115 and 220 V switch-mode applications such as Switching Regulators,Inverters,Motor Controls, Solenoid/Relay drivers and Deflection circuits.

400VOLTS/75WATTS

TO-220

MAXIMUM RATINGS

Rating	Symbol	*MJE13005*	Unit
Collector-Emitter Voltage	$V_{CEO(SUS)}$	400	Vdc
Collector-Emitter Voltage	V_{CEV}	700	Vdc
Emitter-Base Voltage	V_{EB}	9	Vdc
Collector Current-Continuous Peak	I_C	4 8	Adc
Base Current --Peak(1)	I_B IBM	2 4	Adc
Total Power Dissipation @T_C=25° C Derate above 25°C	P_D	 75 0.6	 Watts W/° C
Operating & Storage Junction Temperature Range	Tj,Tstg	-65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.67	°C/W

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (I_C=10mA,I_B=0)	V_{CEO}(sus)	400	—	Vdc
Collector Cutoff Current (V_{CEV}=Rated Value, VBE(off)= 1.5Vdc)	I_{CEV}	—	1	mAdc
Emitter Cutoff Current (V_{BE}=9Vdc, I_C=0)	I_{EBO}	—	1	mAdc
ON CHARACTERISTICS				
DC Current Gain (I_C=1Adc, V_{CE}=5Vdc) (I_C=2Adc, V_{CE}=5Vdc)	h_{FE}	 10 8	 60 40	—
Collector-Emitter Saturation Voltage (I_C=2Adc, I_B=500mAdc) (Ic=4Adc,Ib=1Adc)	$V_{CE(sat)}$	—	 0.6 1	Vdc
Base-Emitter Saturation Voltage (I_C=2Adc, Ib=500mAdc) (Ic-1Adc, Ib=0.2Adc)	$V_{BE(sat)}$	—	 1.6 1.2	Vdc

ISO 14001 CERTIFIED
AN ISO 9002 COMPANY

DYNAMIC CHARACTERISTICS

Current Gain-Bandwidth Product (I_C=0.5Adc,V_{CE}=10Vdc,f_{test}=1MHz	f_T	4.0	__	MHz
Small-Signal Current Gain (I_C=500mAdc,V_{CE}=10Vdc,f=1KHz	Cob	--	65 Typ	pF

SWITHING CHARACTERISTICS

Resistive Load						
Delay Time	(V_{CC}=125Vdc, I_C=2A,	t_d	--	0.025	0.1	μ s
Rise Time	I_{B1}=I_{B2}=0.4A, tp=25μ s,	t_r	--	0.3	0.7	
Storage Time	Duty Cycle< 1%)	t_s	--	1.7	4.0	
Fall Time		t_f	--	0.4	0.9	
Inductive Load **Clamped**						
Voltage Storage Time	(I_C=2A, Vclamp=300Vdc,	t_{sv}	--	0.9	4.0	μ s
Crossover Time	I_{B1}=0.4A, VBE(off)=5Vdc, T_C=100 °	t_c	--	0.32	0.9	
Fall Time	C)	tf		0.16	---	

* Pulse Test : Pulse Width 300 ✪s , Duty cycle = 2%

FOR MJE13007

SWITHING CHARACTERISTICS

Resistive Load						
Delay Time	(V_{CC}=125Vdc, I_C=2A,	t_d	--	0.05	0.1	μ s
Rise Time	I_{B1}=I_{B2}=0.4A, tp=25μ s,	t_r	--	0.8	1.5	
Storage Time	Duty Cycle< 1%)	t_s	--	1.0	3	
Fall Time		t_f	--	0.15	0.7	
Inductive Load **Clamped**						
Voltage Storage Time	(I_C=2A, Vclamp=300Vdc,	t_{sv}	--	0.86	2.3	μ s
Crossover Time	I_{B1}=0.4A, VBE(off)=5Vdc, T_C=100 °	t_c	--	0.14	0.7	
	C)					

* Pulse Test : Pulse Width 300 ✪s , Duty cycle = 2%