

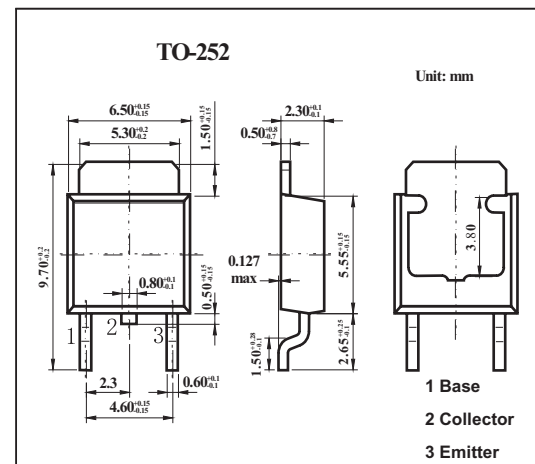
Complementary Power Transistors

MJD31,MJD31C(NPN)

MJD32,MJD32C(PNP)

■ Features

- Lead Formed for Surface Mount Applications in Plastic Sleeves
- Pb-Free Packages are Available

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	
Collector-emitter voltage	MJD31,MJD32 MJD31C,MJD32C	V_{CEO}	40	V
			100	V
Collector-base voltage	MJD31,MJD32 MJD31C,MJD32C	V_{CB}	40	V
			100	V
Emitter-base voltage		V_{EB}	5	V
Collector current		I_C	3	A
Collector current (pulse)		I_{CP}	5	A
Base current		I_B	1	A
Total Device Dissipation FR-5 Board @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	15	W	
		0.12	W/ $^\circ\text{C}$	
Total Device Dissipation Alumina Substrate @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	1.56	W	
		0.012	W/ $^\circ\text{C}$	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-65 to +150	$^\circ\text{C}$	
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	8.3	$^\circ\text{C}/\text{W}$	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	80	$^\circ\text{C}/\text{W}$	
Lead Temperature for Soldering Purposes	T_L	260	$^\circ\text{C}$	

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector-emitter sustaining voltage MJD31,MJD32 MJD31C,MJD32C	V _{CEo(sus)}	I _c = 30 mA, I _B = 0	40			V
			100			V
Collector cutoff current MJD31,MJD32 MJD31C,MJD32C	I _{CEO}	V _{CE} = 40 V, I _B = 0			50	μA
		V _{CE} = 60 V, I _B = 0			50	μA
Collector cutoff current	I _{CES}	V _{CE} = Rated V _{CEo} , V _{EB} = 0			20	μA
Emitter cutoff current	I _{EBO}	V _{BE} = 5V, I _C = 0			1	mA
DC current gain *	h _{FE}	I _C = 1 A, V _{CE} = 4 V	25			
		I _C = 3 A, V _{CE} = 4 V	10		50	
Collector-emitter saturation voltage *	V _{CE(sat)}	I _C = 3 A, I _B = 375 mA			1.2	V
Base-emitter saturation voltage *	V _{BE(on)}	I _C = 3 A, V _{CE} = 4 V			1.8	V
Current-gain-bandwidth product *2	f _r	I _C = 500 mA, V _{CE} = 10 V, f _{test} = 1 MHz	3			MHz
Small-signal current gain	h _{fe}	I _C = 0.5 A, V _{CE} = 10 V, f = 1 kHz	20			

*1 Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2.0%.

*2 f_r = | h_{fe} | f_{test}

■ hFE Classification

TYPE	MJD31	MJD31C	MJD32	MJD32C
Marking	J31	J31C	J32	J32C