

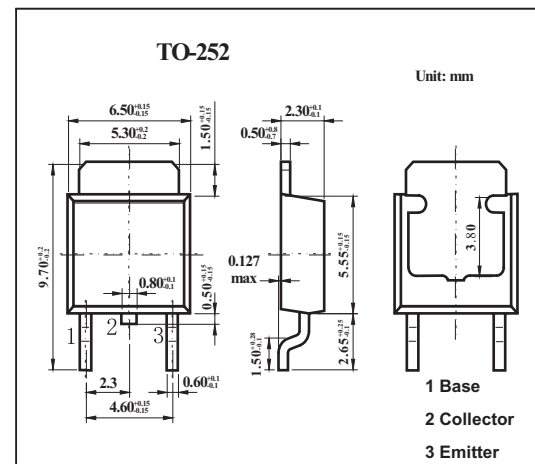
## Complementary Power Transistors

MJD31,MJD31C(NPN)

MJD32,MJD32C(PNP)

## ■ Features

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



## ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit	
Collector-emitter voltage	MJD31,MJD32 MJD31C,MJD32C	V <sub>CEO</sub>	40	V
			100	V
Collector-base voltage	MJD31,MJD32 MJD31C,MJD32C	V <sub>CB</sub>	40	V
			100	V
Emitter-base voltage		V <sub>EB</sub>	5	V
Collector current		I <sub>C</sub>	3	A
Collector current (pulse)		I <sub>CP</sub>	5	A
Base current		I <sub>B</sub>	1	A
Total Device Dissipation FR-5 Board @T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	15	W	
		0.12	W/°C	
Total Device Dissipation Alumina Substrate @T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	1.56	W	
		0.012	W/°C	
Junction temperature	T <sub>J</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-65 to +150	°C	
Thermal Resistance, Junction-to-Case	R <sub>θJC</sub>	8.3	°C/W	
Thermal Resistance, Junction-to-Ambient	R <sub>θJA</sub>	80	°C/W	
Lead Temperature for Soldering Purposes	T <sub>L</sub>	260	°C	

## MJD31,MJD31C(NPN) MJD32,MJD32C(PNP)

### ■ Electrical Characteristics Ta = 25°C

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

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

\*2 f<sub>r</sub> = | h<sub>fe</sub> | f<sub>test</sub>

### ■ hFE Classification

TYPE	MJD31	MJD31C	MJD32	MJD32C
Marking	J31	J31C	J32	J32C