

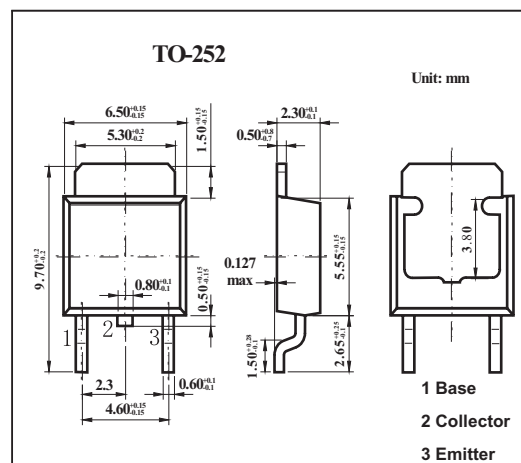
Complementary Power Transistors

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	V_{CEO}	40	V
	MJD31C,MJD32C		100	V
Collector-base voltage	MJD31,MJD32	V_{CB}	40	V
	MJD31C,MJD32C		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°C Derate above 25°C		P _D	15 0.12	W W/°C
Total Device Dissipation Alumina Substrate @T _A = 25°C Derate above 25°C		P _D	1.56 0.012	W W/°C
Junction temperature		T _j	150	°C
Storage temperature		T _{stg}	-65 to +150	°C
Thermal Resistance, Junction-to-Case		R _{θJC}	8.3	°C/W
Thermal Resistance, Junction-to-Ambient		R _{θJA}	80	°C/W
Lead Temperature for Soldering Purposes		TL	260	°C

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

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter sustaining voltage MJD31,MJD32 MJD31C,MJD32C	$V_{CE(sus)}$	$I_C = 30\text{ mA}, I_B = 0$	40			V
			100			V
Collector cutoff current MJD31,MJD32 MJD31C,MJD32C	I_{CEO}	$V_{CE} = 40\text{ V}, I_B = 0$			50	μA
		$V_{CE} = 60\text{ V}, I_B = 0$			50	μA
Collector cutoff current	I_{CES}	$V_{CE} = \text{Rated } V_{CE0}, V_{EB} = 0$			20	μA
Emitter cutoff current	I_{EBO}	$V_{BE} = 5\text{ V}, I_C = 0$			1	mA
DC current gain *	h_{FE}	$I_C = 1\text{ A}, V_{CE} = 4\text{ V}$	25			
		$I_C = 3\text{ A}, V_{CE} = 4\text{ V}$	10		50	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 3\text{ A}, I_B = 375\text{ mA}$			1.2	V
Base-emitter saturation voltage *	$V_{BE(on)}$	$I_C = 3\text{ A}, V_{CE} = 4\text{ V}$			1.8	V
Current-gain-bandwidth product *2	fr	$I_C = 500\text{ mA}, V_{CE} = 10\text{ V}, f_{test} = 1\text{ MHz}$	3			MHz
Small-signal current gain	h_{fe}	$I_C = 0.5\text{ A}, V_{CE} = 10\text{ V}, f = 1\text{ kHz}$	20			

*1 Pulse test: pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2.0\%$.

*2 $fr = |h_{fe}| \cdot f_{test}$

■ hFE Classification

TYPE	MJD31	MJD31C	MJD32	MJD32C
Marking	J31	J31C	J32	J32C