

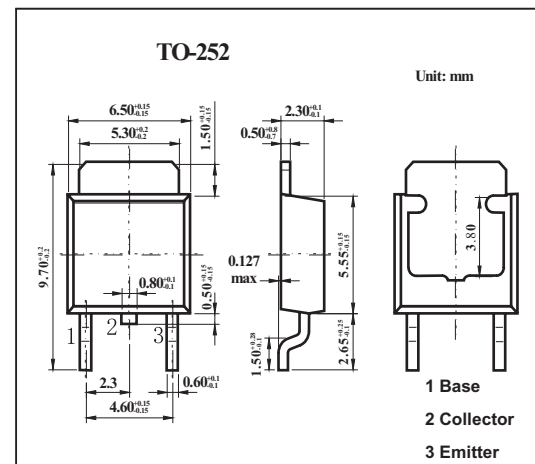
## Complementary Power Transistors

MJD41C(NPN)

MJD42C(PNP)

## ■ Features

- Lead Formed for Surface Mount Applications in Plastic Sleeves
- Monolithic Construction With Built-in Base & Emitter Resistors
- Pb-Free Packages are Available

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

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	$V_{CE0}$	100	V
Collector-base voltage	$V_{CB}$	100	V
Emitter-base voltage	$V_{EB}$	5	V
Collector current	$I_C$	6	A
Collector current (pulse)	$I_{CP}$	10	A
Base current	$I_B$	2	A
Total Device Dissipation FR-5 Board @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	20 0.16	W W/ $^\circ\text{C}$
Total Device Dissipation Alumina Substrate @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.75 0.014	W 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	$R_{\theta JC}$	6.25	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	71.4	$^\circ\text{C}/\text{W}$

## MJD41C(NPN)

## MJD42C(PNP)

### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter sustaining voltage	$V_{CE(sus)}$	$I_C = 30 \text{ mA}, I_B = 0$	100			V
Collector cutoff current	$I_{CEO}$	$V_{CE} = 60 \text{ V}, I_B = 0$			50	$\mu\text{A}$
Collector cutoff current	$I_{CES}$	$V_{CE} = 100 \text{ V}, V_{EB} = 0$			10	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{BE} = 5 \text{ V}, I_C = 0$			0.5	mA
DC current gain *	$h_{FE}$	$I_C = 0.3 \text{ A}, V_{CE} = 4 \text{ V}$	30			
		$I_C = 3 \text{ A}, V_{CE} = 4 \text{ V}$	15		75	
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 6 \text{ A}, I_B = 600 \text{ mA}$			1.5	V
Base-emitter saturation voltage *	$V_{BE(on)}$	$I_C = 6 \text{ A}, V_{CE} = 4 \text{ V}$			2	V
Current-gain-bandwidth product *2	$f_T$	$I_C = 500 \text{ mA}, V_{CE} = 10 \text{ V}, f_{test} = 1 \text{ MHz}$	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  $\leq 300 \mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

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

### ■ hFE Classification

TYPE	MJD41C	MJD42C
Marking	J41C	J42C