

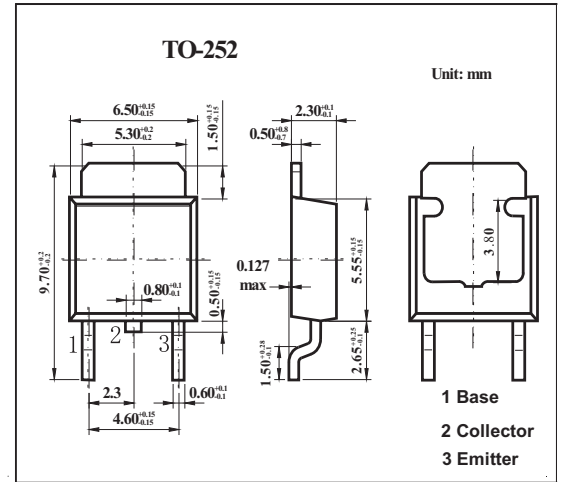
TO-252 Plastic-Encapsulate Transistors

Features

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

MECHANICAL DATA

- Case style: TO-252 molded plastic
- Mounting position: any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

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/°C	
Total Device Dissipation Alumina Substrate @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	1.56	W	
		0.012	W/°C	
Junction temperature	T_J	150	°C	
Storage temperature	T_{stg}	-65 to +150	°C	
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	8.3	°C/W	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	80	°C/W	
Lead Temperature for Soldering Purposes	T_L	260	°C	

Parameter	Symbol	Test conditions	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} $V_{CE} = 40\text{ V}, I_B = 0$ $V_{CE} = 60\text{ V}, I_B = 0$			50	μA
					50	μA
Collector cutoff current	I_{CES}	$V_{CE} = \text{Rated } V_{CEO}, V_{EB} = 0$			20	μA
Emitter cutoff current	I_{EBO}	$V_{BE} = 5\text{ V}, I_C = 0$			1	mA
DC current gain *	h_{FE}	$I_C = 1\text{ A}, V_{CE} = 4\text{ V}$ $I_C = 3\text{ A}, V_{CE} = 4\text{ V}$	25			
			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	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 $f_T = |h_{fe}| f_{test}$

hFE Classification

TYPE	MJD31	MJD31C	MJD32	MJD32C
Marking	J31	J31C	J32	J32C