



MJD32C

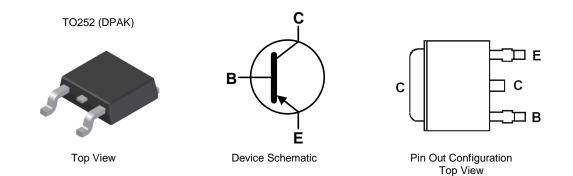
**100V PNP HIGH VOLTAGE TRANSISTOR IN TO252** 

### Features

- BV<sub>CEO</sub> > -100V
- I<sub>C</sub> = -3A high Continuous Collector Current
- I<sub>CM</sub> = -5A Peak Pulse Current
- Ideal for Power Switching or Amplification Applications
- Complementary NPN Type: MJD31C
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

# **Mechanical Data**

- Case: TO252 (DPAK)
- Case Material: Molded Plastic, "Green" Molding Compound UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (3)
- Weight: 0.34 grams (Approximate)



### Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
MJD32C-13	AEC-Q101	MJD32C	13	16	2,500

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.

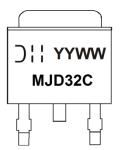
See http://www.diodes.com/quality/lead\_free.html for more information about Diodes Incorporated's definitions of Halogen and Antimony free, "Green" and Lead-Free.
Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and</li>

<1000ppm antimony compounds.

4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

### **Marking Information**

Notes:



MJD32C = Product Type Marking Code )!! = Manufacturers' code marking YYWW = Date Code Marking YY = Last Digit of Year (ex: 17 = 2017) WW = Week Code (01 - 53)



# Absolute Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-100	V
Emitter-Base Voltage	V <sub>EBO</sub>	-6	V
Continuous Collector Current	lc	-3	А
Peak Pulse Collector Current	I <sub>CM</sub>	-5	A
Continuous Base Current	IB	-1	A
Power Dissipation	PD	15	W

# Thermal Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit			
	(Note 5)		3.9			
Power Dissipation	(Note 6)	PD	2.1	W		
	(Note 7)		1.6	1		
	(Note 5)	R <sub>θJA</sub>	32			
Thermal Resistance, Junction to Ambient Air	(Note 6)		59	0000		
	(Note 7)		80	°C/W		
Thermal Resistance, Junction to Leads	(Note 8)	R <sub>θJL</sub>	3.6			
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	С°			

## ESD Ratings (Note 9)

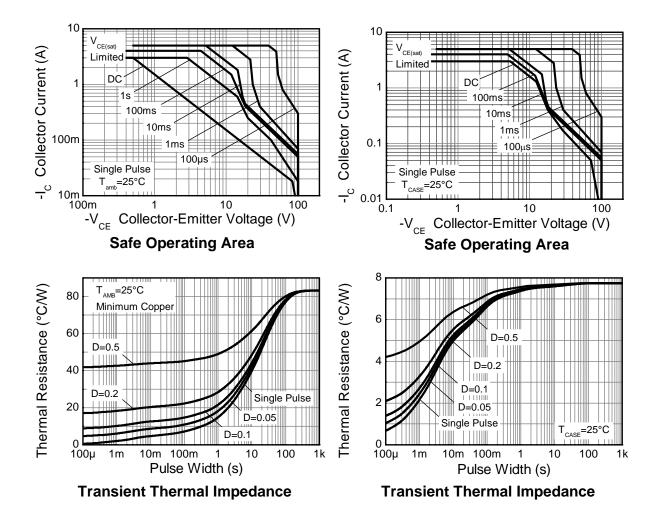
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	С

Notes: 5. For a device mounted with the exposed collector pad on 50mm x 50mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured For a device mounted with the exposed collector pad on somm x somm 202 copper under still air conditions whilst operating in a steady-state.
Same as note (5), except mounted on 25mm x 25mm 1oz copper.
Same as note (5), except mounted on minimum recommended pad (MRP) layout.
Thermal resistance from junction to solder-point (on the exposed collector pad).
Refer to JEDEC specification JESD22-A114 and JESD22-A115.



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# Thermal Characteristics





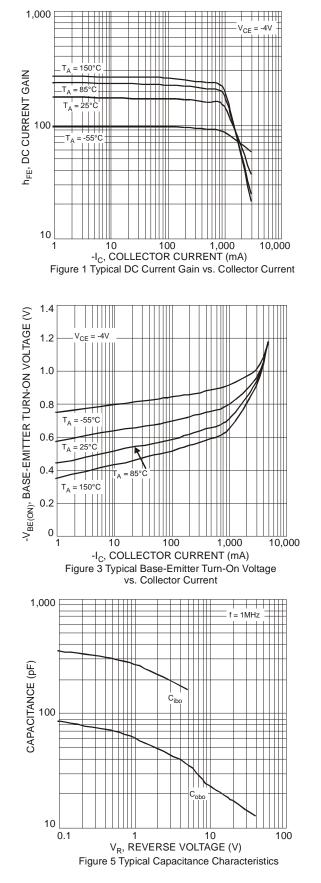
# Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

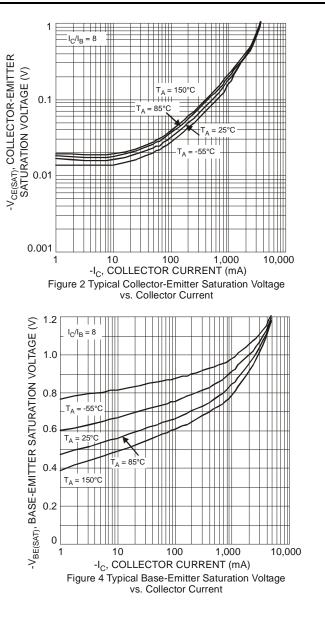
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage (Note 10)	BV <sub>CEO</sub>	-100	_	_	V	$I_{\rm C} = -30 {\rm mA}, I_{\rm B} = 0$
Collector Cut-off Current	I <sub>CEO</sub>			-1	μA	$V_{CB} = -60V, I_B = 0$
Collector Cut-off Current	I <sub>CES</sub>		_	-1	μA	$V_{CE} = -100V, V_{EB} = 0$
Emitter Cut-off Current	I <sub>EBO</sub>	_	_	-1	μA	$V_{EB} = -5V, I_{C} = 0$
Collector-Emitter Saturation Voltage (Note 10)	V <sub>CE(sat)</sub>		_	-1.2	V	I <sub>C</sub> = -3.0A, I <sub>B</sub> = -375mA
Base-Emitter Turn-On Voltage (Note 10)	V <sub>BE(on)</sub>	_	_	-1.8	V	$I_{C} = -3A, V_{CE} = -4V$
DC Current Gain (Note 10)	h	25		_	$V_{CE} = -4V, I_{C} = -1A$	
	h <sub>FE</sub>	10			$V_{CE} = -4V, I_{C} = -3A$	
Current Signal Current Gain	H <sub>fe</sub>	20	_		_	V <sub>CE</sub> = -10V, I <sub>C</sub> = -0.5A, f = 1KHz
Current Gain-Bandwidth Product	f⊤	3.0			MHz	$I_{C} = -500 \text{mA}, V_{CE} = -10 \text{V}, f = 1 \text{MHz}$

Note: 10. Measured under pulsed conditions. Pulse width  $\leq$  300µs. Duty cycle  $\leq$  2%.



# Typical Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)



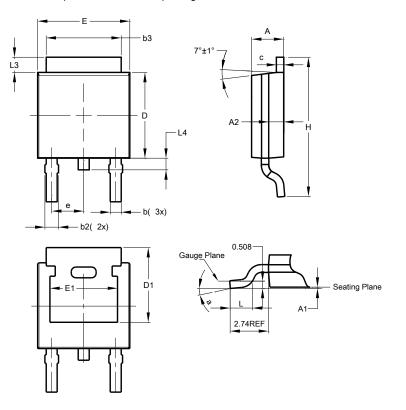




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# **Package Outline Dimensions**

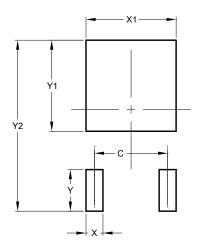
Please see http://www.diodes.com/package-outlines.html for the latest version.



TO252 (DPAK)				
Dim	Min	Max	Тур	
Α	2.19	2.39	2.29	
A1	0.00	0.13	0.08	
A2	0.97	1.17	1.07	
b	0.64	0.88	0.783	
b2	0.76	1.14	0.95	
b3	5.21	5.46	5.33	
С	0.45	0.58	0.531	
D	6.00	6.20	6.10	
D1	5.21	-	-	
е	-	-	2.286	
Е	6.45	6.70	6.58	
E1	4.32	-	-	
Н	9.40	10.41	9.91	
L	1.40	1.78	1.59	
L3	0.88	1.27	1.08	
L4	0.64	1.02	0.83	
а	0°	10°	-	
All Dimensions in mm				

# **Suggested Pad Layout**

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value (in mm)
С	4.572
Х	1.060
X1	5.632
Y	2.600
Y1	5.700
Y2	10.700

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.



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