



**THE DATASHEET OF
MJD32CUQ-13**



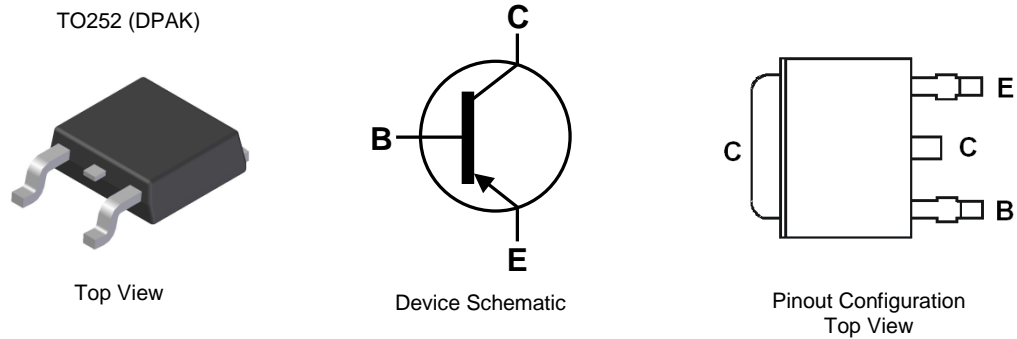
Features

- $BV_{CEO} > -100V$
- $I_C = -3A$ High Continuous Collector Current
- $I_{CM} = -5A$ Peak Pulse Current
- Ideal for Power Switching or Amplification Applications
- Complementary NPN Type: MJD31CUQ
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The MJD32CUQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: TO252
- Package 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)

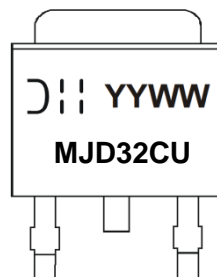


Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
MJD32CUQ-13	TO252 (DPAK)	MJD32CU	13	16	2,500	Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



MJD32CU = Product Type Marking Code
 DII = Manufacturers' Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 24 = 2024)
 WW = Week Code (01 to 53)

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	-120	V
Collector-Emitter Voltage	V _{CEO}	-100	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current	I _C	-3	A
Peak Pulse Collector Current	I _{CM}	-5	A
Continuous Base Current	I _B	-1	A
Power Dissipation	P _D	16	W

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

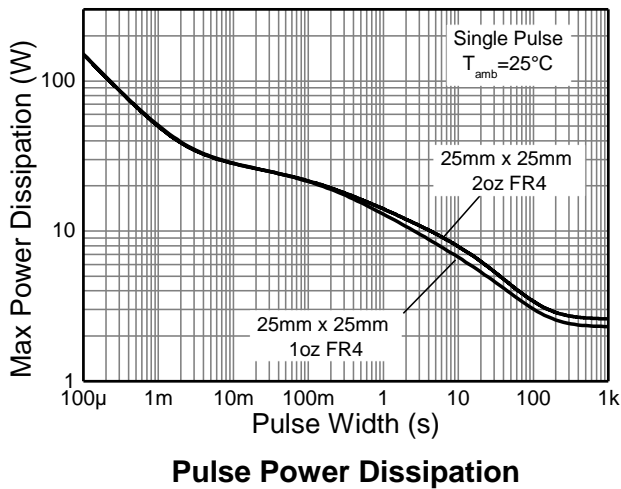
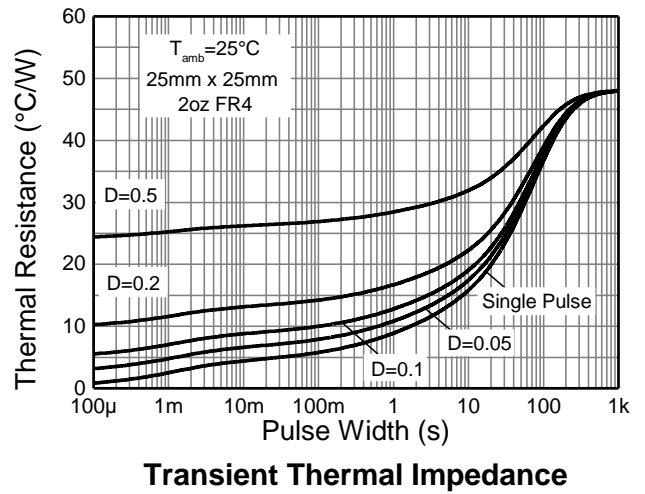
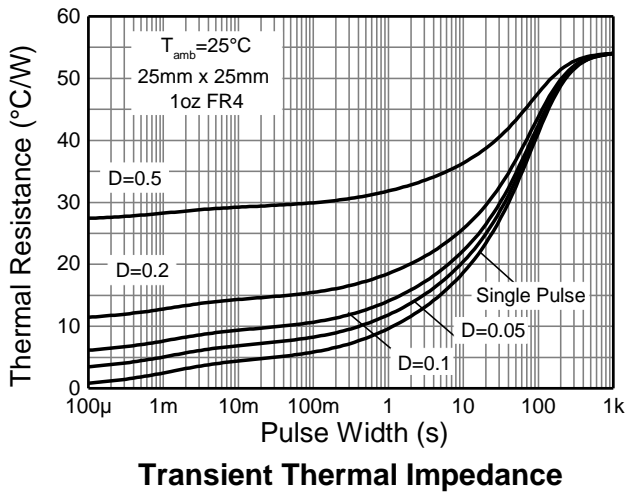
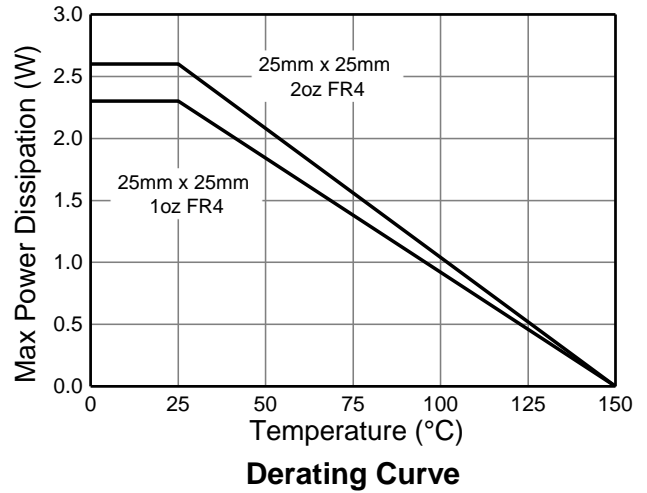
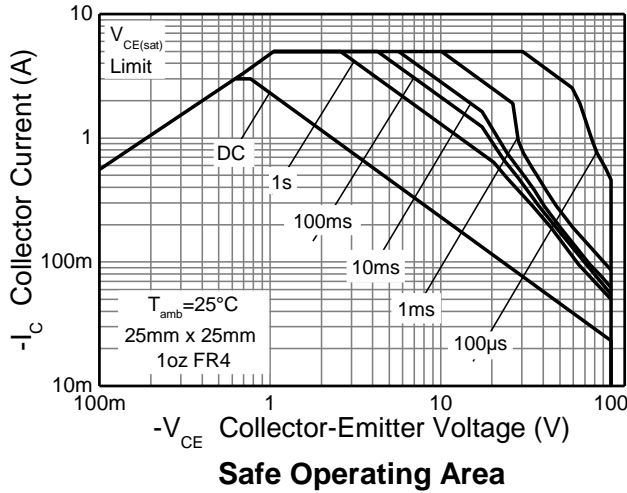
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	(Note 5)	2.60
		(Note 6)	2.30
		(Note 7)	1.45
Thermal Resistance, Junction to Ambient Air	R _{θJA}	(Note 5)	48
		(Note 6)	54
		(Note 7)	86
Thermal Resistance, Junction to Leads	R _{θJL}	7.8	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	7.3	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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	C

- 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 FR-4 PCB; device is measured under still air conditions whilst operating in a steady state.
 6. Same as note (5), except mounted on 25mm x 25mm 1oz copper.
 7. Same as note (5), except mounted on minimum recommended pad (MRP) layout.
 8. Thermal resistance from junction to solder-point (on the exposed collector pad).
 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics

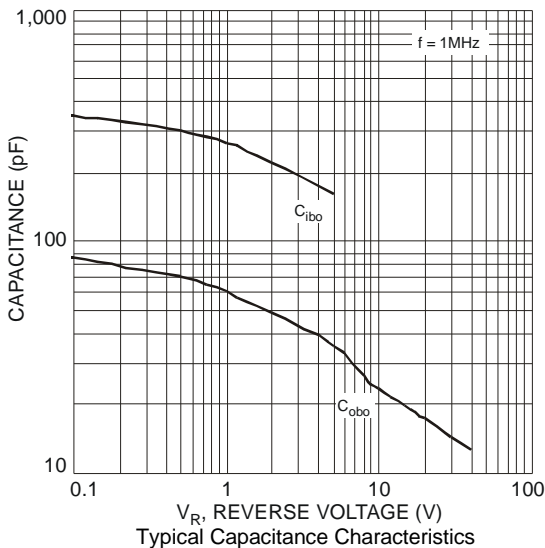
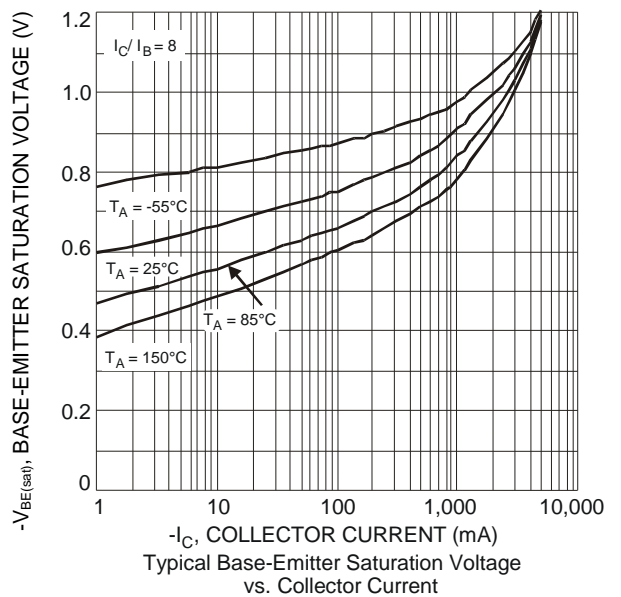
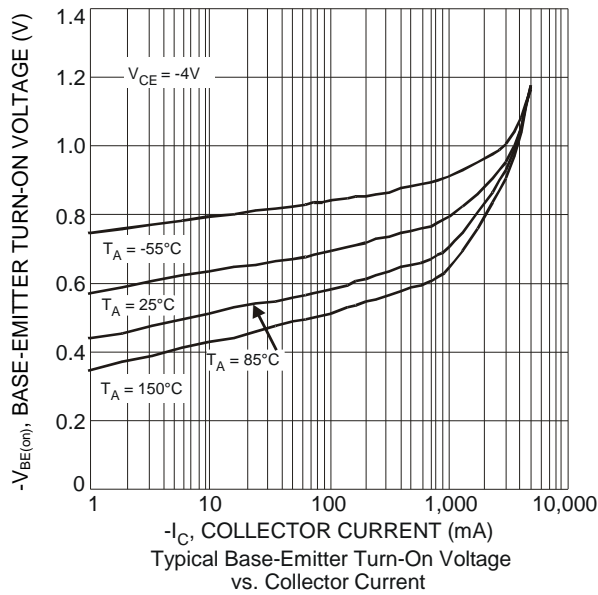
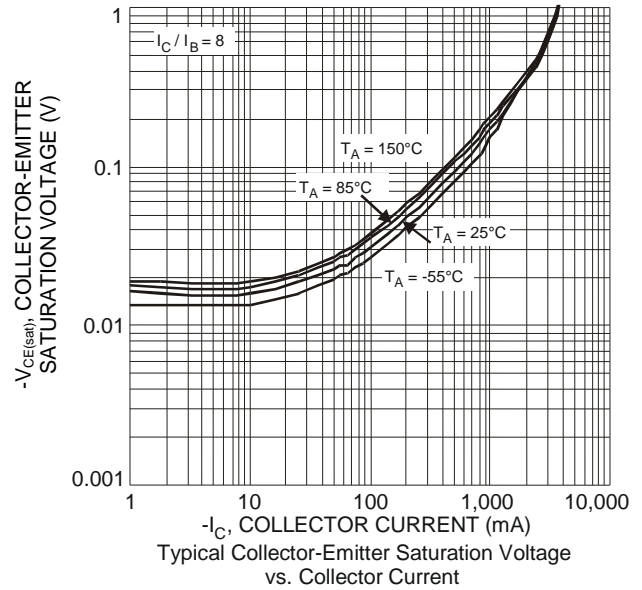
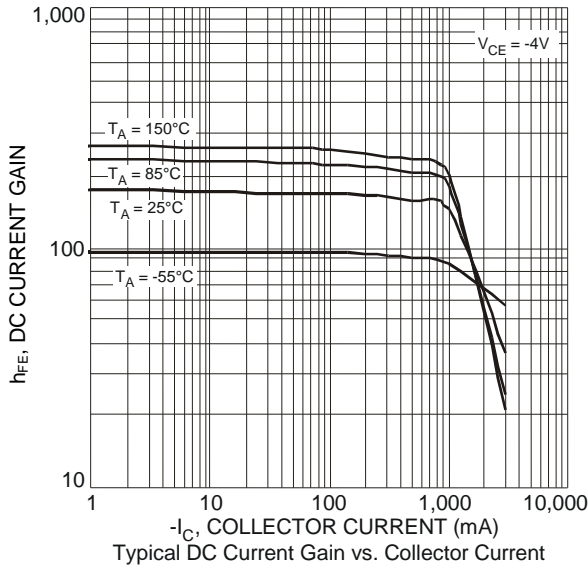


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	-120	–	–	V	I _C = -20μA
Collector-Emitter Breakdown Voltage (Note 10)	BV _{CEO}	-100	–	–	V	I _C = -30mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	–	–	V	I _E = -100μA
Collector-Base Cut-off Current	I _{CBO}	–	–	-1	μA	V _{CB} = -100V
Collector Cut-off Current	I _{CEO}	–	–	-1	μA	V _{CE} = -60V
Collector Cut-off Current	I _{CES}	–	–	-1	μA	V _{CE} = -100V
Emitter Cut-off Current	I _{EBO}	–	–	-1	μA	V _{EB} = -5V
Collector-Emitter Saturation Voltage (Note 10)	V _{CE(sat)}	–	–	-300	mV	I _C = -1A, I _B = -100mA
		–	–	-500	mV	I _C = -2A, I _B = -200mA
		–	–	-700	mV	I _C = -3A, I _B = -375mA
Base-Emitter Saturation Voltage (Note 10)	V _{BE(sat)}	–	–	-1.2	V	I _C = -2A, I _B = -200mA
Base-Emitter Turn-On Voltage (Note 10)	V _{BE(on)}	–	–	-950	mV	I _C = -1A, V _{CE} = -2V
		–	–	-1.4	V	I _C = -3A, V _{CE} = -4V
DC Current Gain (Note 10)	h _{FE}	25	–	–	–	V _{CE} = -4V, I _C = -1A
		10	–	50	–	V _{CE} = -4V, I _C = -3A
Current Signal Current Gain	h _{FE}	20	–	–	–	V _{CE} = -10V, I _C = -0.5A, f = 1kHz
Current Gain-Bandwidth Product	f _T	3.0	–	–	MHZ	I _C = -0.5A, V _{CE} = -10V, f = 1MHz

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

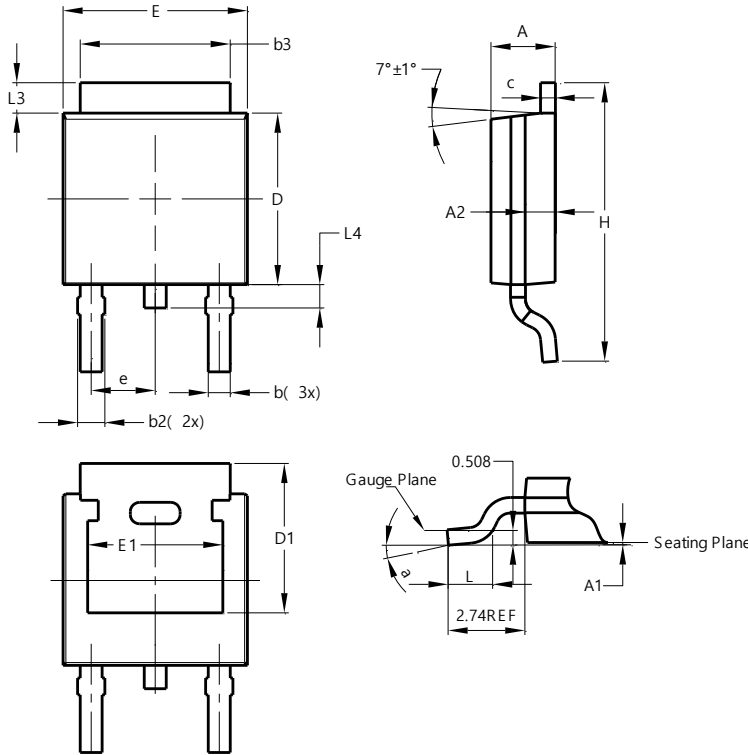
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



Package Outline Dimensions

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

TO252 (DPAK)

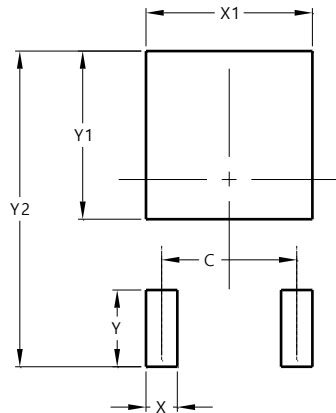


TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.50	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	--	--
e	2.286 BSC		
E	6.45	6.70	6.58
E1	4.32	--	--
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	--
All Dimensions in mm			

Suggested Pad Layout

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

TO252 (DPAK)



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

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