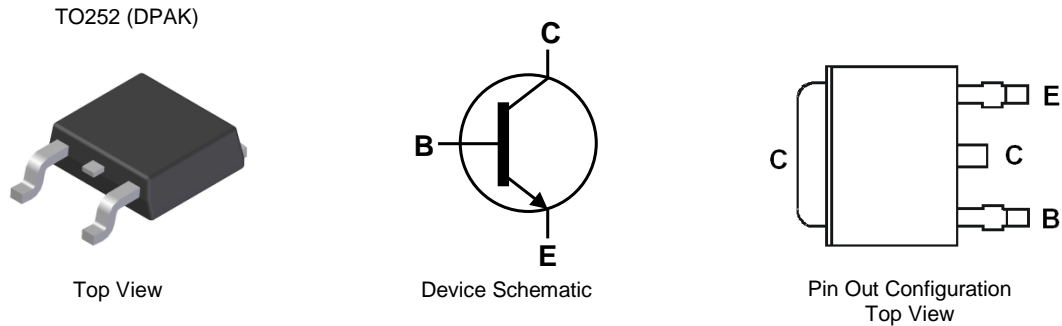


Features

- $BV_{CEO} > 50V$
 - $I_C = 2A$ Continuous Collector Current
 - $I_{CM} = 3A$ Peak Pulse Current
 - Ideal for Power Switching or Amplification Applications
 - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
 - **Halogen and Antimony Free. "Green" Device (Note 3)**
- The DIODES™ MJD2873Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.
- <https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: TO252 (DPAK)
- 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)

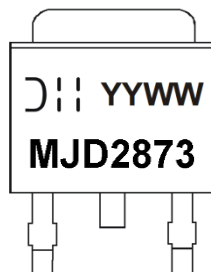


Ordering Information (Note 4)

Product	Package	Marking	Reel size (inches)	Tape width (mm)	Packing	
					Qty.	Carrier
MJD2873Q-13	TO252 (DPAK)	MJD2873	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



- MJD2873 = Product Type Marking Code
- DII = Manufacturers' Code Marking
- YYWW = Date Code Marking
- YY = Last Digit of Year (ex: 22 = 2022)
- WW = Week Code (01 – 53)

Absolute Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	70	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	7	V
Continuous Collector Current	I_C	2	A
Peak Pulse Collector Current	I_{CM}	3	A

Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, 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	$R_{\theta JA}$	(Note 5)	48
		(Note 6)	54
		(Note 7)	86
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

ESD Ratings (Note 8)

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 25mm x 25mm 2oz copper that is on a single-sided 1.6mm FR4 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. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics

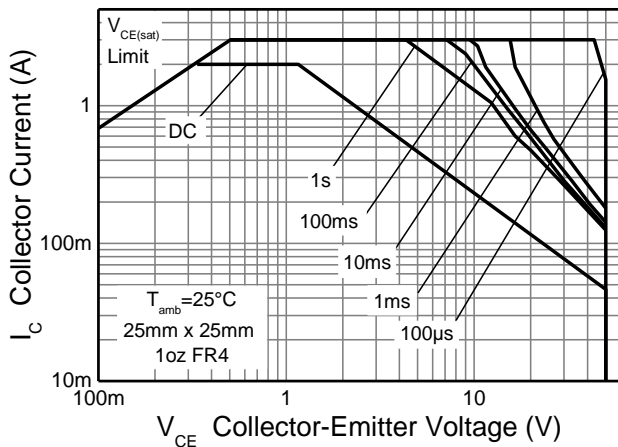


Figure 1. Safe Operating Area

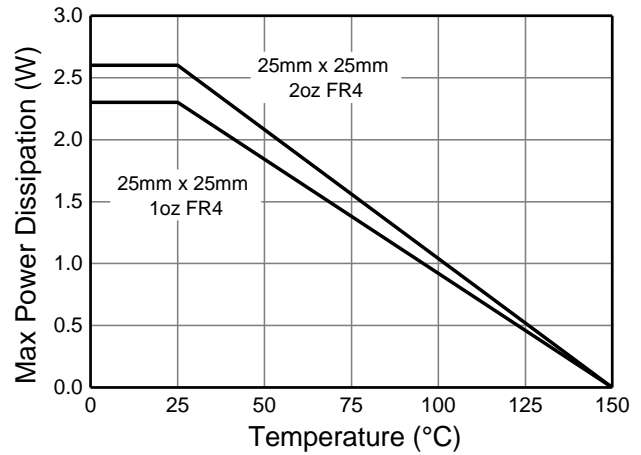


Figure 2. Derating Curve

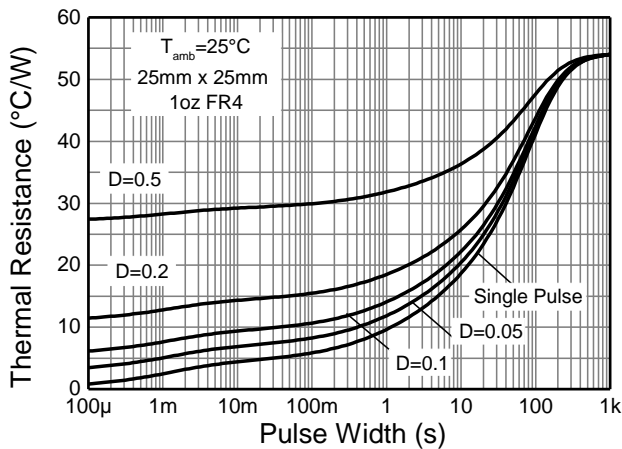


Figure 4. Transient Thermal Impedance

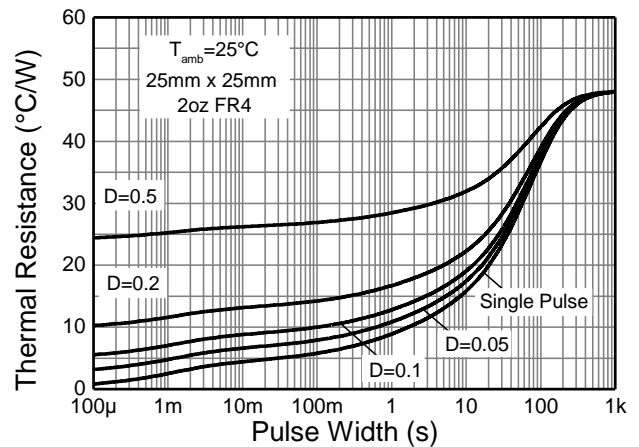


Figure 3. Transient Thermal Impedance

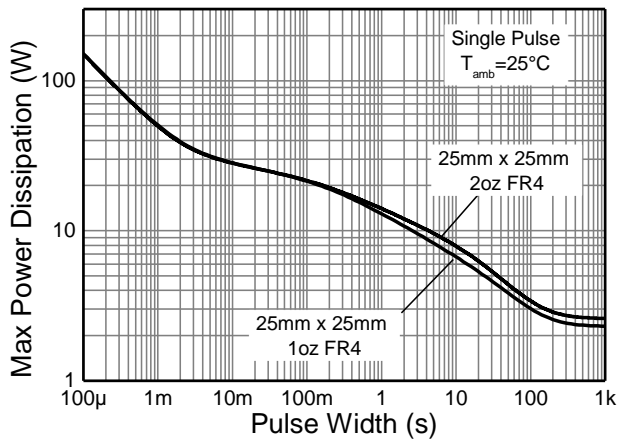


Figure 5. Pulse Power Dissipation

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	70	—	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	50	—	—	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	7	—	—	V	I _E = 100μA
Collector Cut-off Current	I _{CES}	—	—	100	nA	V _{CE} = 50V
Collector-Base Cut-off Current	I _{CBO}	—	—	100	nA	V _{CB} = 70V
Emitter Cut-off Current	I _{EBO}	—	—	100	nA	V _{EB} = 6V
Collector-Emitter Saturation Voltage (Note 9)	V _{CE(sat)}	—	—	0.3	V	I _C = 1A, I _B = 50mA
Base-Emitter Saturation Voltage (Note 9)	V _{BE(sat)}	—	—	1.2	V	I _C = 1A, I _B = 50mA
Base-Emitter Turn-On Voltage (Note 9)	V _{BE(on)}	—	—	1.2 0.95	V	I _C = 1A, V _{CE} = 2V I _C = 0.75A, V _{CE} = 1.6V
DC Current Gain (Note 9)	h _{FE}	120 40 80	— — —	— — —	—	V _{CE} = 2V, I _C = 0.5A V _{CE} = 2V, I _C = 2A V _{CE} = 1.6V, I _C = 0.75A
Current Gain-Bandwidth Product	f _T	65	—	—	MHz	I _C = 0.1A, V _{CE} = 10V, f = 100MHz
Output Capacitance	C _{obo}	—	26	—	pF	V _{CB} = 10V, f = 1MHz
Input Capacitance	C _{ibo}	—	45	—	pF	V _{EB} = 0.5V, f = 1MHz
Delay Time	t _d	—	29	—	ns	I _C = 0.5A, V _{CC} = 10V I _{B1} = -I _{B2} = 50mA
Rise Time	t _r	—	20	—	ns	
Storage Time	t _s	—	378	—	ns	
Fall Time	t _f	—	57	—	ns	

Note: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

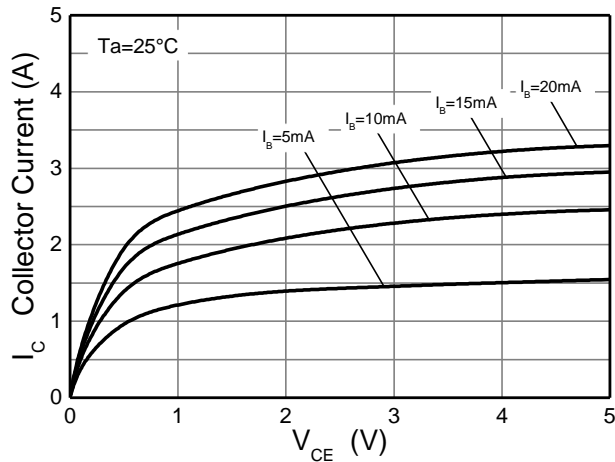


Figure 6. I_C v V_{CE}

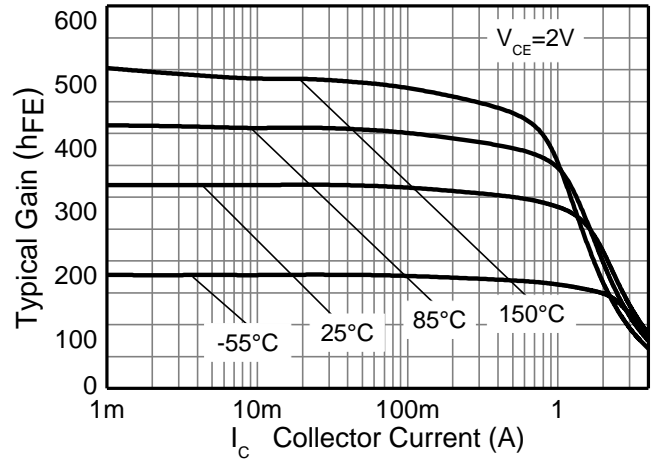


Figure 7. h_{FE} v I_C

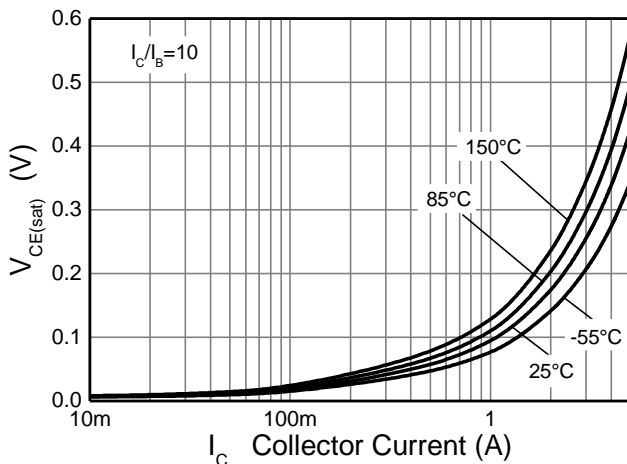


Figure 8. $V_{CE(sat)}$ v I_C

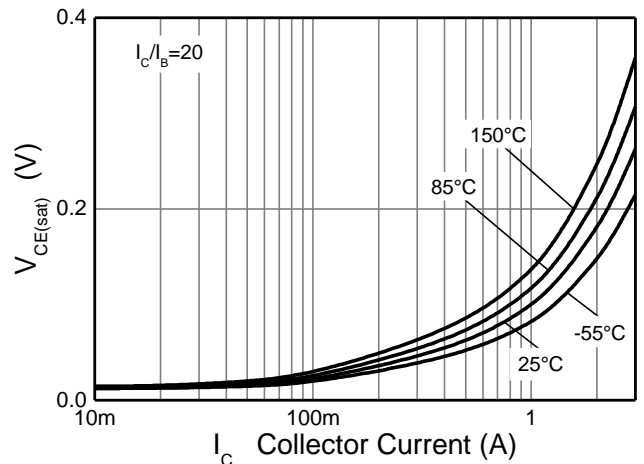


Figure 9. $V_{CE(sat)}$ v I_C

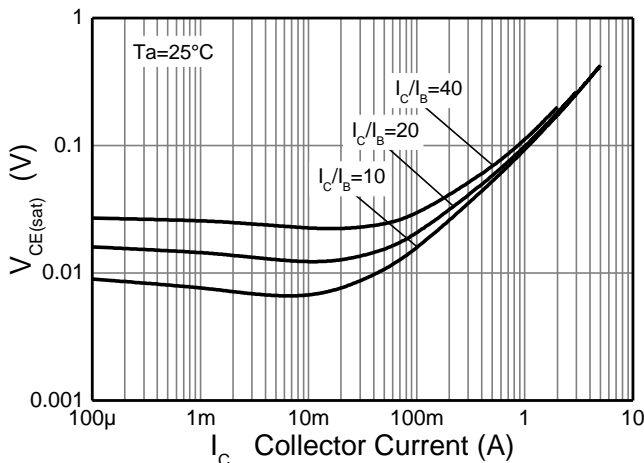


Figure 10. $V_{CE(sat)}$ v I_C

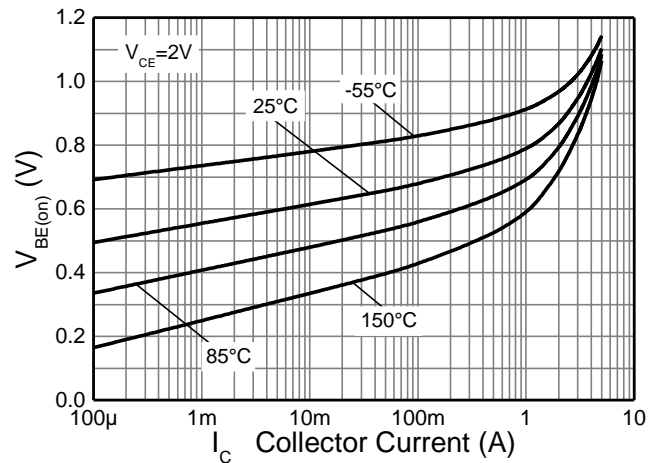


Figure 11. $V_{BE(on)}$ v I_C

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

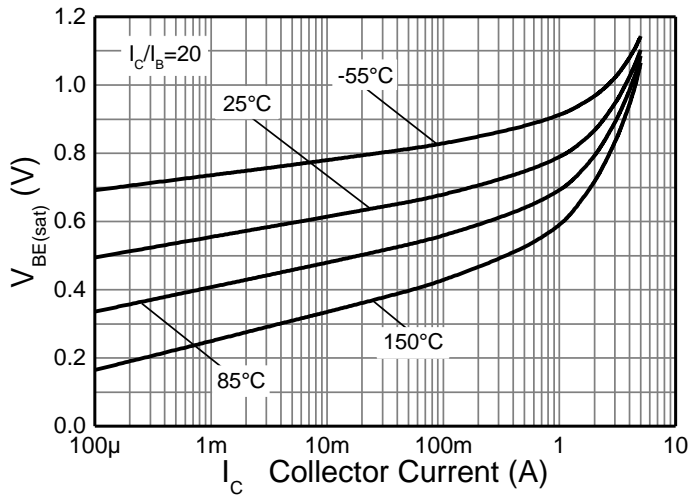
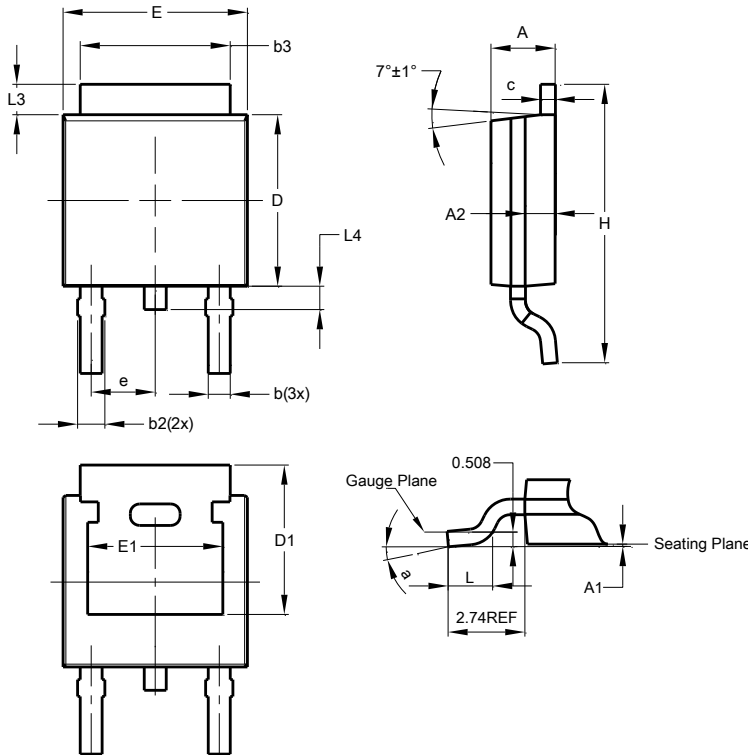


Figure 12. $V_{BE(sat)}$ v I_C

Package Outline Dimensions

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

TO252 (DPAK)

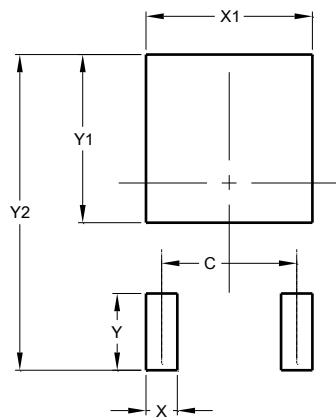


TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.50	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	--	--
e	2.286 BSC		
E	6.45	6.70	6.58
E1	4.32	--	--
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83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