


## 70V NPN POWER SWITCHING TRANSISTOR IN SOT89

### Features

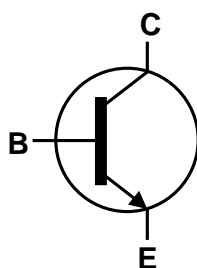
- $BV_{CEO} > 70V$
- $I_C = 2A$  High Continuous Collector Current
- $I_{CM}$  Up to 4A Peak Pulse Current
- 2W Power Dissipation
- Low Saturation Voltage  $< 300\text{ mV}$  @ 1A
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### Mechanical Data

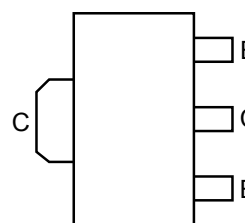
- Case: SOT89
- Case Material: Molded Plastic, "Green" Molding Compound
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Lead.  
Solderable per MIL-STD-202, Method 208 
- Weight: 0.052 grams (Approximate)



Top View



Device Symbol


 Top View  
Pin-Out

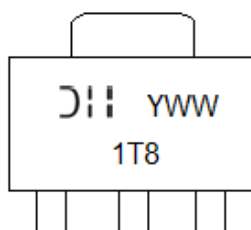
### Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DXTN26070CY-13	Standard	1T8	13	12	2,500

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](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.
  3. Halogen and Antimony free "Green" products are defined as those which contain  $< 900\text{ppm}$  bromine,  $< 900\text{ppm}$  chlorine ( $< 1500\text{ppm}$  total Br + Cl) and  $< 1000\text{ppm}$  antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

### Marking Information

SOT89



1T8 = Product Type Marking Code  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 5 = 2015)  
 WW = Week Code 01 - 52

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	150	V
Collector-Emitter Voltage	V <sub>CEO</sub>	70	V
Emitter-Base Voltage	V <sub>EBO</sub>	7	V
Continuous Collector Current	I <sub>C</sub>	2	A
Peak Pulse Current (Note 5)	I <sub>CM</sub>	4	A

Note 5. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤ 2%.

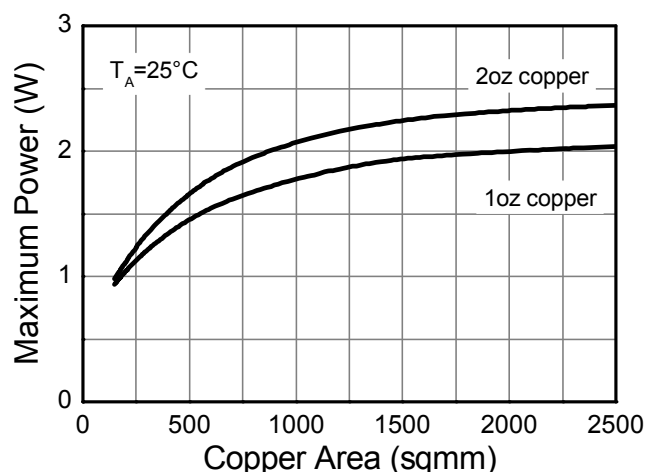
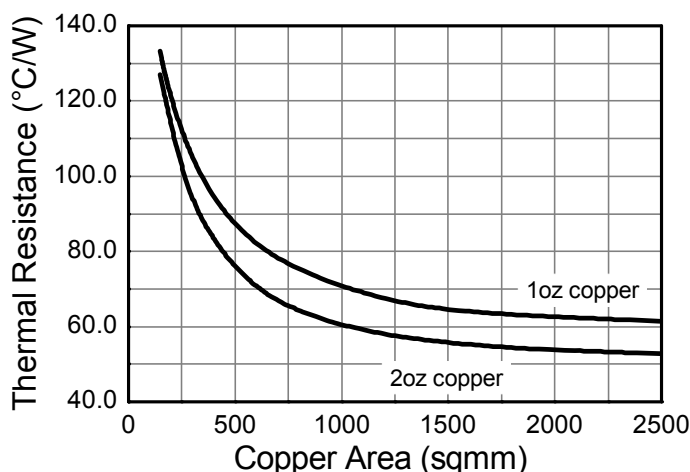
**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	(Note 6)	0.7	W
	(Note 7)	1.0	
	(Note 8)	1.5	
	(Note 9)	2.0	
Thermal Resistance, Junction to Ambient Air	(Note 6)	178	°C/W
	(Note 7)	125	
	(Note 8)	83	
	(Note 9)	60	
Thermal Resistance, Junction to Lead	(Note 10)	22	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

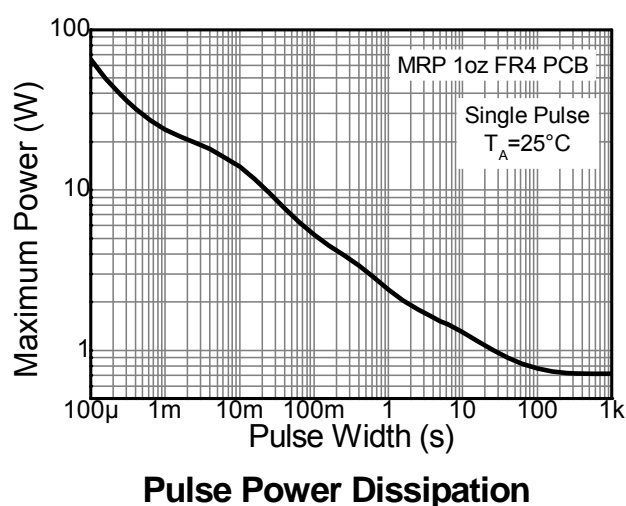
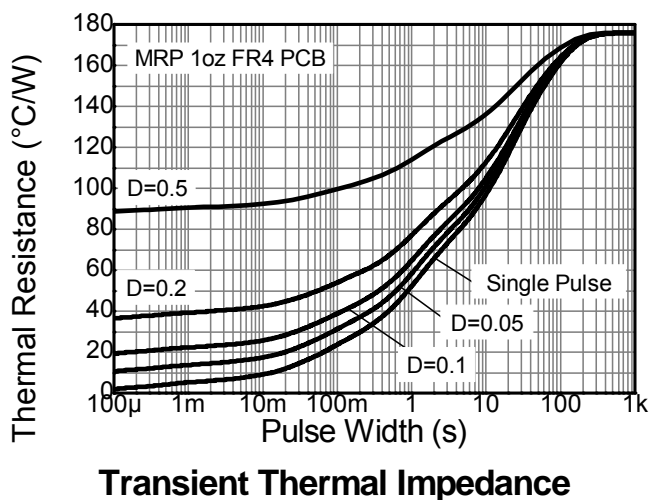
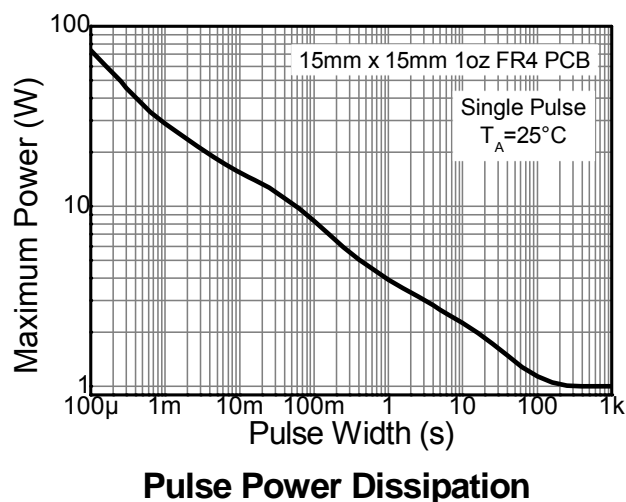
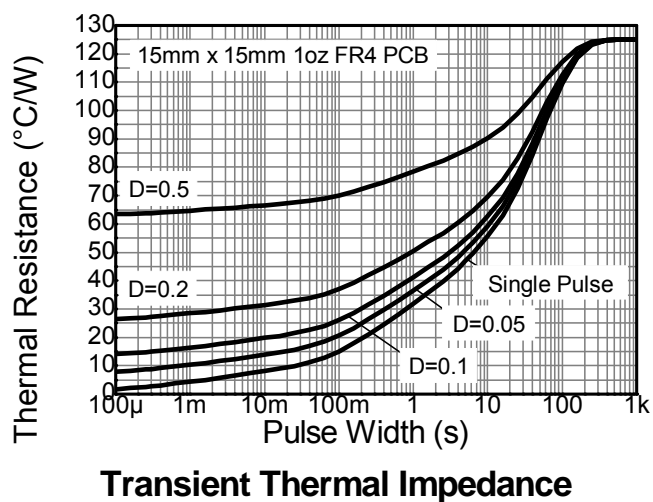
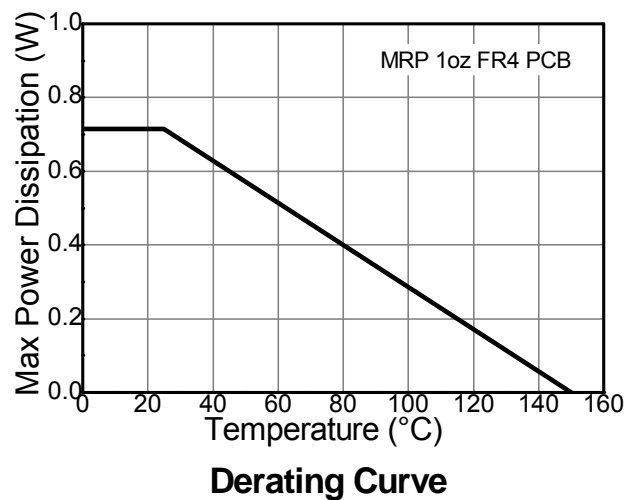
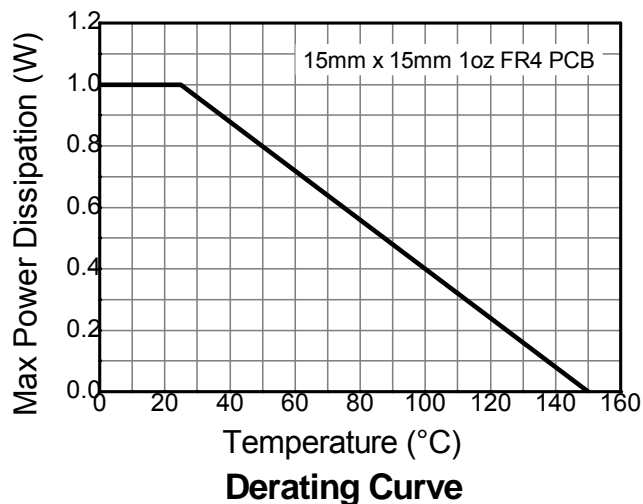
**ESD Ratings** (Note 11)

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:
- For a device mounted with the exposed collector pad on minimum recommended pad layout (MRP) 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
  - Same as Note 5, except the device is mounted with the exposed collector pad on 15mm x 15mm 1oz copper.
  - Same as Note 5, except the device is mounted with the exposed collector pad on 25mm x 25mm 1oz copper.
  - Same as Note 5, except the device is mounted with the exposed collector pad on 50mm x 50mm 1oz copper.
  - Thermal resistance from junction to solder-point (on the exposed collector pad).
  - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

**Thermal Characteristics and Derating Information**


**Thermal Characteristics and Derating Information** (continued)

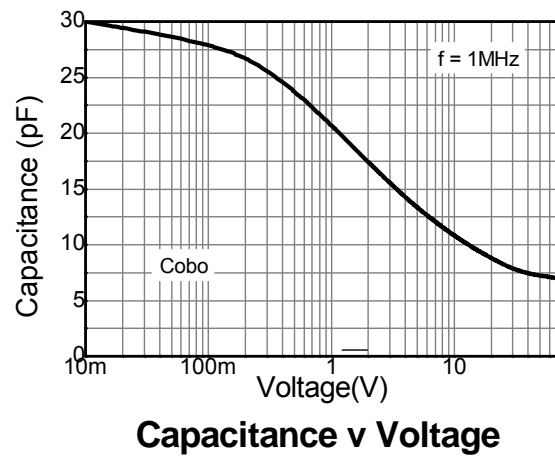
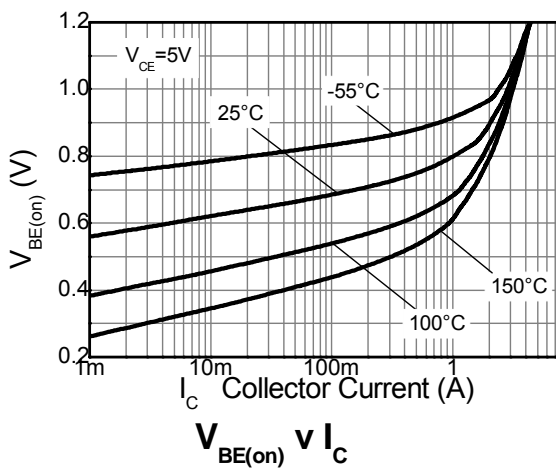
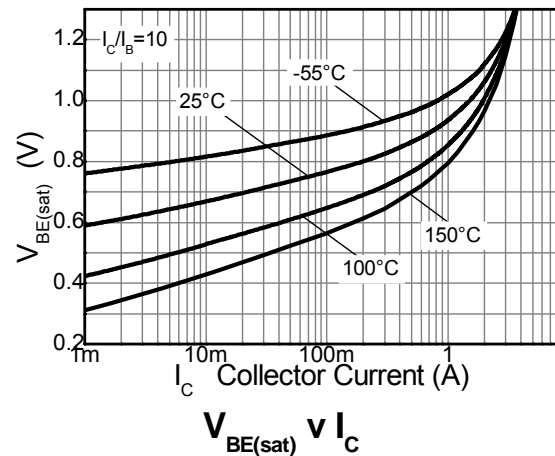
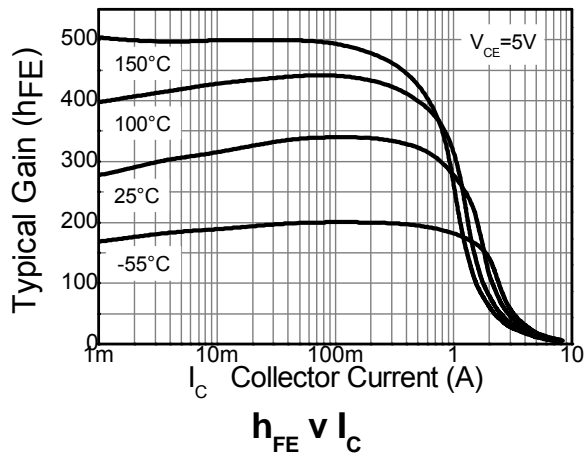
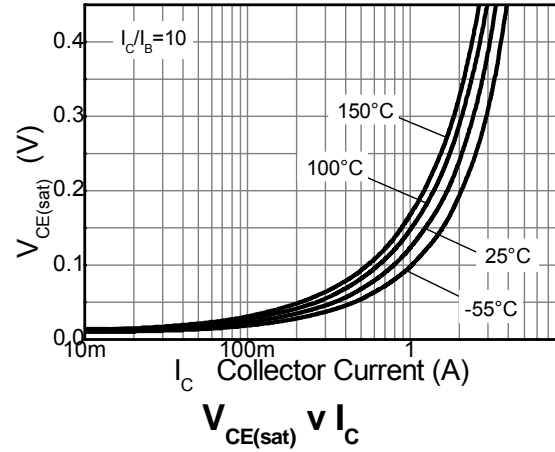
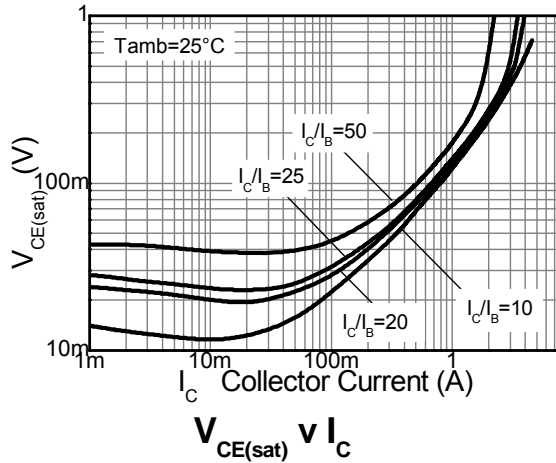


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b>						
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	150	-	-	V	I <sub>C</sub> = 100 µA
Collector-Emitter Breakdown Voltage (Note 12)	BV <sub>CEO</sub>	70	-	-	V	I <sub>C</sub> = 1mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	7	8.2	-	V	I <sub>E</sub> = 100 µA
Collector-Base Cutoff Current	I <sub>CBO</sub>	-	<1	50	nA	V <sub>CB</sub> = 96V
		-	-	10	µA	V <sub>CB</sub> = 96V, T <sub>A</sub> = +100°C
Emitter-Base Cutoff Current	I <sub>EBO</sub>	-	<1	20	nA	V <sub>EB</sub> = 5.6V
<b>ON CHARACTERISTICS</b> (Note 12)						
Static Forward Current Transfer Ratio	h <sub>FE</sub>	120 150 200	260 290 300	- - 500	- - -	I <sub>C</sub> = 1mA, V <sub>CE</sub> = 5V I <sub>C</sub> = 10mA, V <sub>CE</sub> = 2V I <sub>C</sub> = 100mA, V <sub>CE</sub> = 2V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	-	150	300	mV	I <sub>C</sub> = 1A, I <sub>B</sub> = 100mA
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>	-	780	-	mV	I <sub>C</sub> = 1A, V <sub>CE</sub> = 5V
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	-	950	-	mV	I <sub>C</sub> = 1A, I <sub>B</sub> = 50mA
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Output Capacitance	C <sub>obo</sub>	-	10	-	pF	V <sub>CB</sub> = 10V, f = 1MHz
Transition Frequency	f <sub>T</sub>	150	220	-	MHz	V <sub>CE</sub> = 10V, I <sub>C</sub> = 50mA, f = 100MHz
Turn-On Time	t <sub>on</sub>	-	63	-	ns	V <sub>CC</sub> =10V, I <sub>C</sub> =0.5A I <sub>B2</sub> = -I <sub>B1</sub> = 25mA
Delay Time	t <sub>d</sub>	-	33	-		
Rise Time	t <sub>r</sub>	-	30	-		
Turn-Off Time	t <sub>off</sub>	-	420	-		
Storage Time	t <sub>s</sub>	-	380	-		
Fall Time	t <sub>f</sub>	-	40	-		

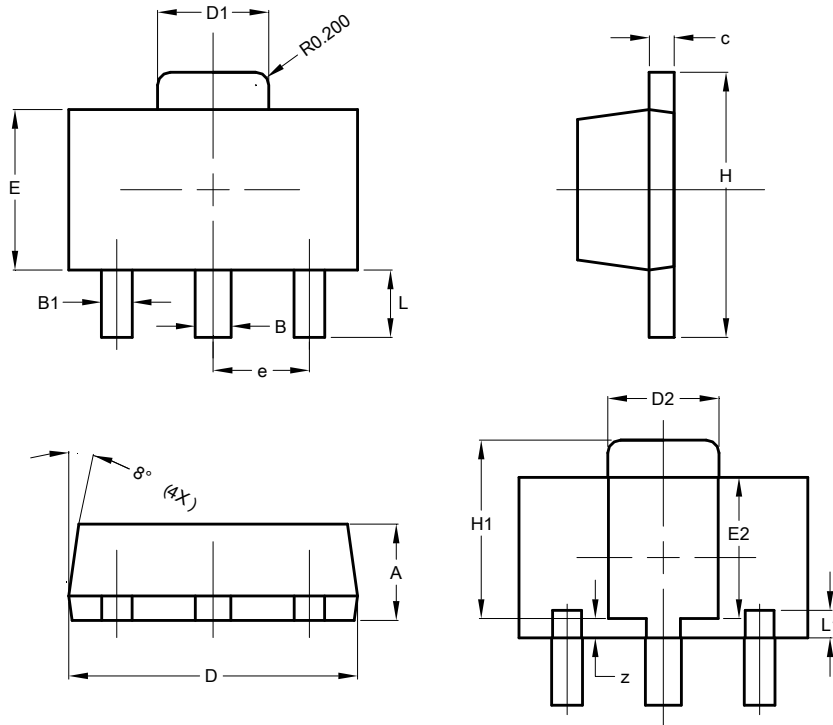
Note: 12. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.

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



## Package Outline Dimensions

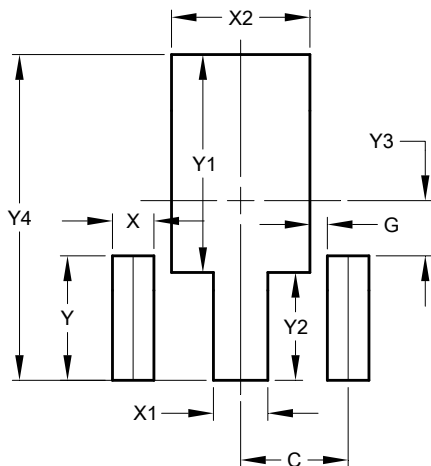
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT89			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.427 REF		
Z	0.30 REF		
All Dimensions in mm			

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530

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