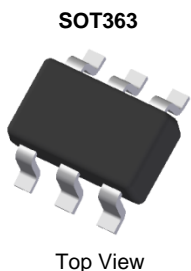


## Features

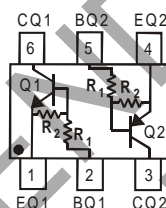
- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- Surface Mount Package Suited for Automated Assembly
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen- and Antimony-Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High-Reliability**
- **PPAP Capable (Note 4)**

R1(NOM)	R2(NOM)
100kΩ	100kΩ



## Mechanical Data

- Case: SOT363
- 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
- Weight: 0.006 grams (Approximate)



Device Schematic

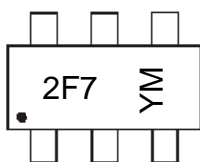
## Ordering Information (Note 6)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
ACX115EUQ-7R (Note 5)	Automotive	2F7	7	8	3,000
ACX115EUQ-13R (Note 5)	Automotive	2F7	13	8	10,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
  5. -7R/-13R are parts rotated in the pocket tape by +180°.
  6. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

**SOT363**



2F7 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: F = 2018)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Code	F	G	H	I	J	K	L	M	N	O	P

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (6) to (1)>	$V_{CC}$	50	V
Input Voltage <Pin: (2) to (1)>	$V_{IN}$	-10 to 40	V
Output Current	$I_O$	20	mA
Output Current	$I_C$ (Max)	100	mA

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

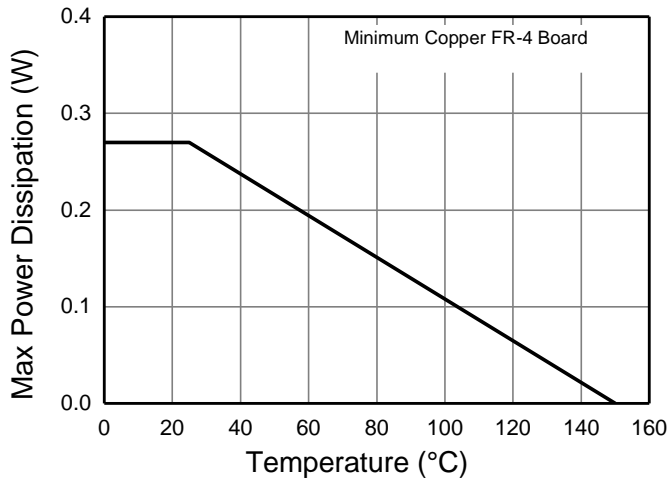
Characteristic	Symbol	Value	Unit
Supply Voltage <Pin: (4) to (3)>	$V_{CC}$	-50	V
Input Voltage <Pin: (5) to (4)>	$V_{IN}$	-40 to 10	V
Output Current	$I_O$	-20	mA
Output Current	$I_C$ (Max)	-100	mA

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

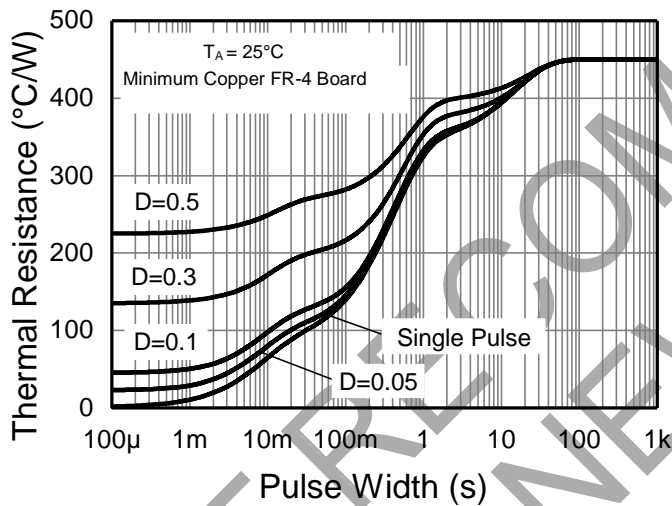
Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 7 & 8)	$P_D$	270	mW
Thermal Resistance, Junction to Ambient Air (Note 7)	$R_{\theta JA}$	450	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Notes: 7. Mounted on FR-4 PC Board with minimum recommended pad layout.  
8. 150mW per element must not be exceeded.

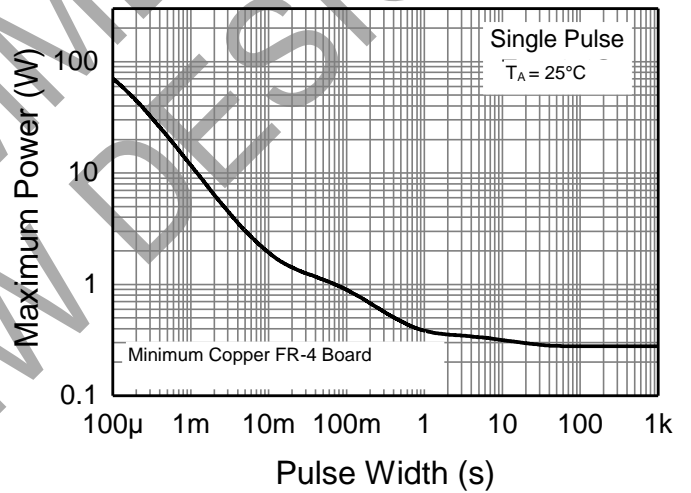
**Thermal Characteristics and Derating Information**



**Derating Curve**



**Transient Thermal Impedance**



**Pulse Power Dissipation**

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(OFF)}$ (Note 9)	0.5	—	—	V	$V_{CC} = 5V, I_O = 100\mu A$
	$V_{I(ON)}$ (Note 10)	—	—	3.0		$V_O = 0.3V, I_O = 1mA$
Output Voltage	$V_{O(ON)}$	—	0.1	0.3	V	$I_O/I_I = 10mA / 0.5mA$
Input Current	$I_I$	—	—	0.15	mA	$V_I = 5V$
Output Current	$I_{O(OFF)}$	—	—	0.5	$\mu A$	$V_{CC} = 50V, V_I = 0V$
DC Current Gain	$G_I$	82	—	—	—	$V_O = 5V, I_O = 5mA$
Input Resistor ( $R_1$ ) Tolerance	$\Delta R_1$	-30	—	30	%	—
Resistance Ratio Tolerance	$\Delta R_2/R_1$	-20	—	20	%	—
Gain-Bandwidth Product (Note 11)	$f_T$	—	250	—	MHz	$V_{CE} = 10V, I_E = 5mA, f = 100MHz$

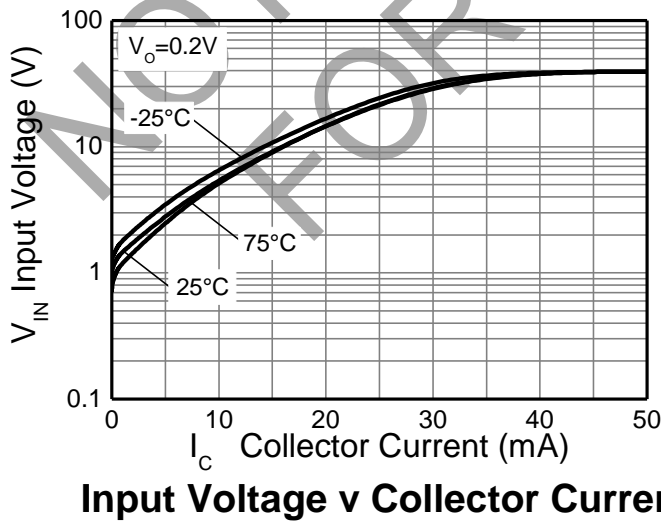
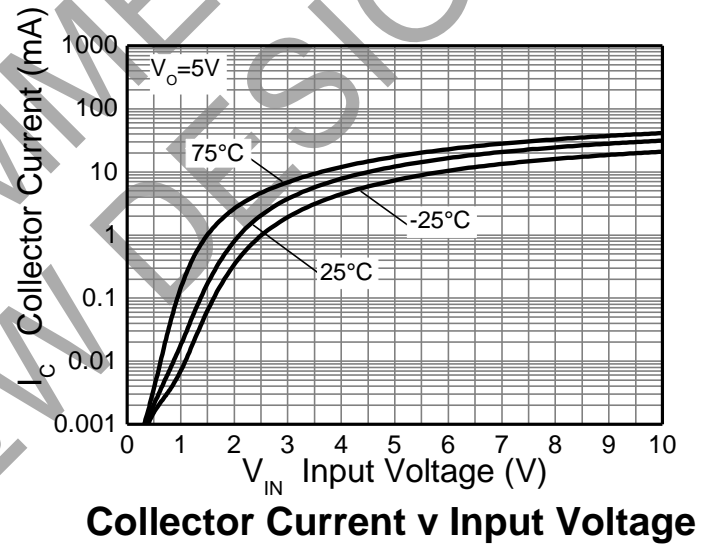
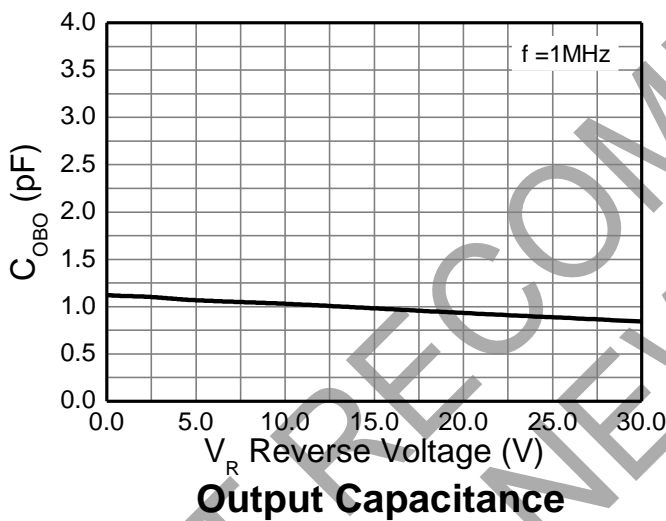
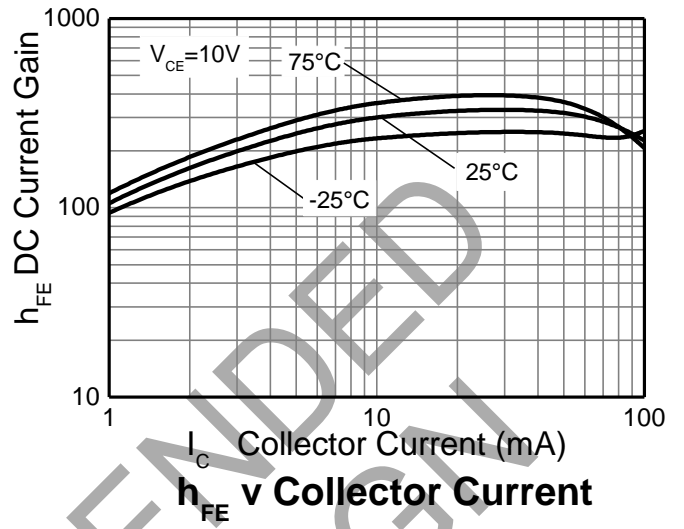
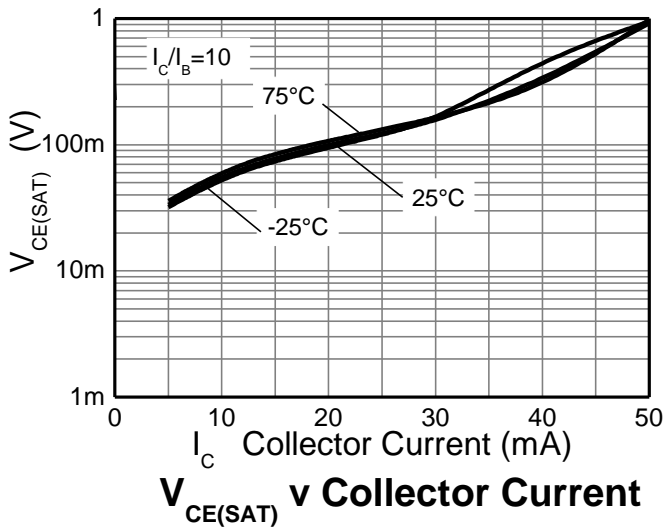
Notes: 9. Guarantees that the device will be switched OFF if the Input Voltage is less than 0.5V.  
 10. Guarantees that the device will be switched ON if the Input Voltage is more than 3V.  
 11. Transistor - For Reference Only.

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

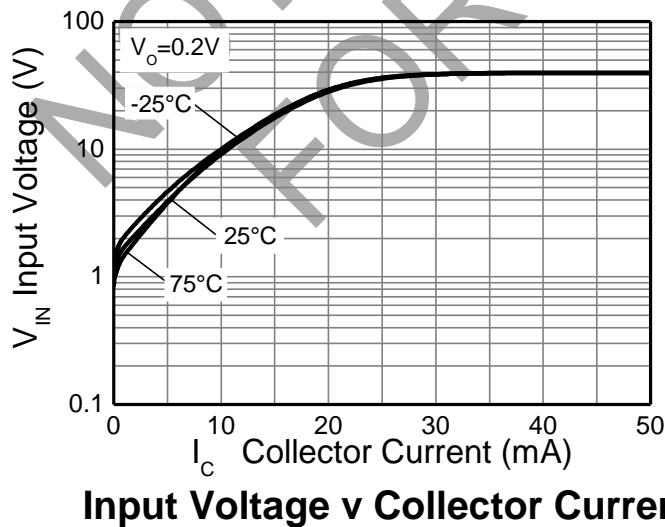
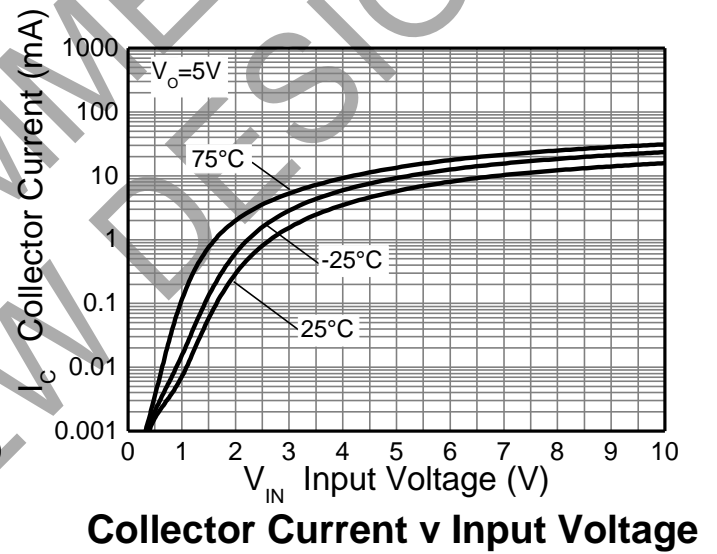
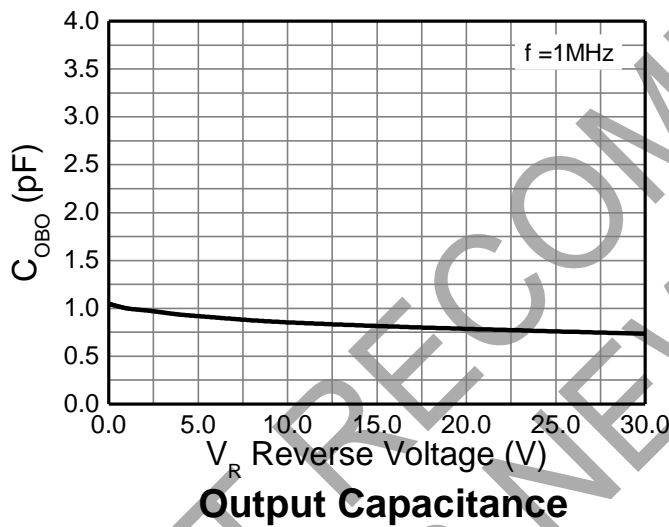
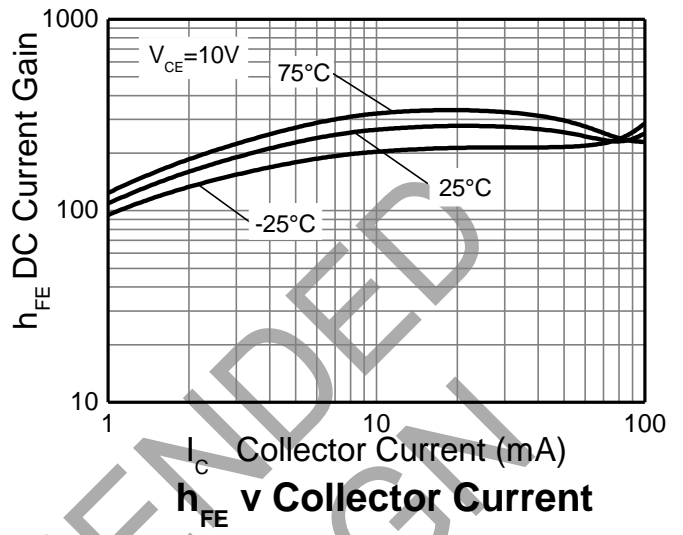
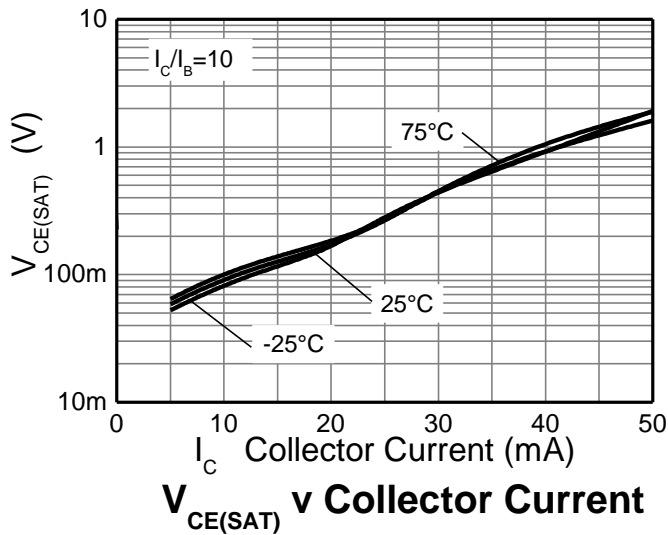
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(OFF)}$ (Note 12)	-0.5	—	—	V	$V_{CC} = -5V, I_O = -100\mu A$
	$V_{I(ON)}$ (Note 13)	—	—	-3.0		$V_O = -0.3V, I_O = -1mA$
Output Voltage	$V_{O(ON)}$	—	-0.1	-0.3	V	$I_O/I_I = -10mA / -0.5mA$
Input Current	$I_I$	—	—	-0.15	mA	$V_I = -5V$
Output Current	$I_{O(OFF)}$	—	—	-0.5	$\mu A$	$V_{CC} = -50V, V_I = 0V$
DC Current Gain	$G_I$	82	—	—	—	$V_O = -5V, I_O = -5mA$
Input Resistor ( $R_1$ ) Tolerance	$\Delta R_1$	-30	—	30	%	—
Resistance Ratio Tolerance	$\Delta R_2/R_1$	-20	—	20	%	—
Gain-Bandwidth Product (Note 11)	$f_T$	—	250	—	MHz	$V_{CE} = -10V, I_E = -5mA, f = 100MHz$

Notes: 12. Guarantees that the device will be switched OFF if the Input Voltage is less than -0.5V.  
 13. Guarantees that the device will be switched ON if the Input Voltage is more than -3V.

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



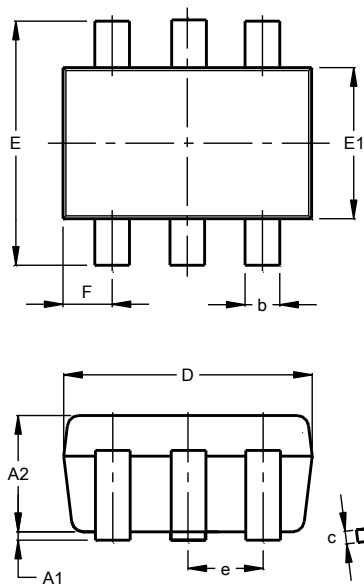
**Typical Electrical Characteristics – PNP Section** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



**Package Outline Dimensions**

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

**SOT363**

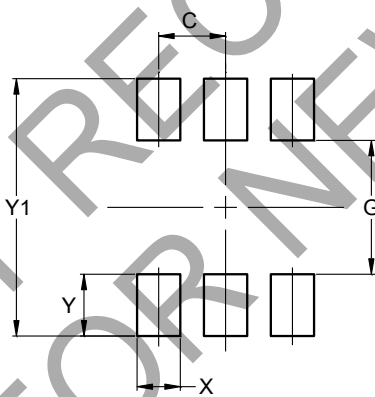


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

**Suggested Pad Layout**

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

**SOT363**



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

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