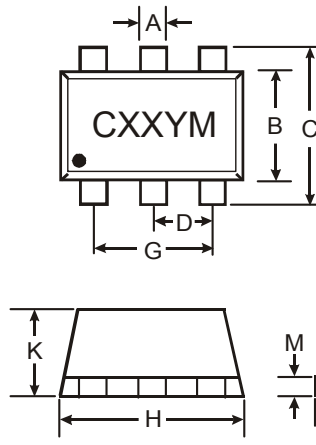


**Features**

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors
- Lead Free By Design/RoHS Compliant (Note 3)
- "Green" Device (Note 4 and 5)

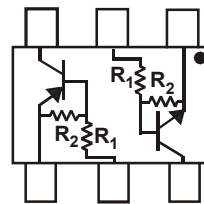
**Mechanical Data**

- Case: SOT-563
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.005 grams (approximate)

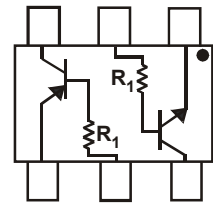


SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.25
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	0.50		
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.56	0.60	0.60
L	0.15	0.25	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

P/N	R1 (NOM)	R2 (NOM)	MARKING
DCX122LH	0.22K $\Omega$	10K $\Omega$	C81
DCX142JH	0.47K $\Omega$	10K $\Omega$	C82
DCX122TH	0.22K $\Omega$	OPEN	C83
DCX142TH	0.47K $\Omega$	OPEN	C84



R<sub>1</sub>, R<sub>2</sub>



R<sub>1</sub> Only

SCHEMATIC DIAGRAM, TOP VIEW

**Maximum Ratings NPN Section**

@T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	50	V
Input Voltage	DCX122LH DCX142JH	V <sub>IN</sub>	-5 to +6 -5 to +6
Input Voltage	DCX122TH DCX142TH	V <sub>EBO (MAX)</sub>	5
Output Current	All	I <sub>C</sub>	100
Power Dissipation	(Note 1, 2)	P <sub>d</sub>	150
Thermal Resistance, Junction to Ambient Air	(Note 1)	R <sub>θJA</sub>	833
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. NPN Section, PNP Section, or maximum combined.
  3. No purposefully added lead.
  4. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  5. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

**Maximum Ratings PNP Section** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	-50	V
Input Voltage	DCX122LH DCX142JH $V_{IN}$	+5 to -6 +5 to -6	V
Input Voltage	DCX122TH DCX142TH $V_{EBO (MAX)}$	-5	V
Output Current	All $I_C$	-100	mA
Power Dissipation	(Note 1, 2) $P_d$	150	mW
Thermal Resistance, Junction to Ambient Air	(Note 1) $R_{\theta JA}$	833	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics NPN Section** @ $T_A = 25^\circ\text{C}$  unless otherwise specified **R1, R2 Types**

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DCX122LH DCX142JH $V_{I(off)}$	0.3 0.3	—	—	V	$V_{CC} = 5V, I_O = 100\mu\text{A}$
	DCX122LH DCX142JH $V_{I(on)}$	—	—	2.0 2.0	V	$V_O = 0.3V, I_O = 20\text{mA}$ $V_O = 0.3V, I_O = 20\text{mA}$
Output Voltage	$V_{O(on)}$	—	—	0.3V	V	$I_O/I_I = 5\text{mA}/0.25\text{mA}$
Input Current	DCX122LH DCX142JH $I_I$	—	—	28 13	mA	$V_I = 5V$
Output Current	$I_{O(off)}$	—	—	0.5	$\mu\text{A}$	$V_{CC} = 50V, V_I = 0V$
DC Current Gain	DDCX122LH DDCX142JH $G_I$	56 56	—	—	—	$V_O = 5V, I_O = 10\text{mA}$
Gain-Bandwidth Product*	$f_T$	—	200	—	MHz	$V_{CE} = 10V, I_E = 5\text{mA}, f = 100\text{MHz}$

\* Transistor - For Reference Only

**Electrical Characteristics NPN Section** @ $T_A = 25^\circ\text{C}$  unless otherwise specified **R1-Only**

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$BV_{CBO}$	50	—	—	V	$I_C = 50\mu\text{A}$
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	40	—	—	V	$I_C = 1\text{mA}$
Emitter-Base Breakdown Voltage	DCX122TH DCX142TH $BV_{EBO}$	5	—	—	V	$I_E = 50\mu\text{A}$ $I_E = 50\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$	—	—	0.5	$\mu\text{A}$	$V_{CB} = 50V$
Emitter Cutoff Current	DCX122TH DCX142TH $I_{EBO}$	—	—	0.5 0.5	$\mu\text{A}$	$V_{EB} = 4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_C = 5\text{mA}, I_B = 0.25\text{mA}$
DC Current Transfer Ratio	DCX122TH DCX142TH $h_{FE}$	100 100	250 250	600 600	—	$I_C = 1\text{mA}, V_{CE} = 5V$
Gain-Bandwidth Product*	$f_T$	—	200	—	MHz	$V_{CE} = 10V, I_E = -5\text{mA}, f = 100\text{MHz}$

\* Transistor - For Reference Only

## Electrical Characteristics PNP Section @ $T_A = 25^\circ\text{C}$ unless otherwise specified **R1, R2 Types**

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DCX122LH DCX142JH	$V_{I(off)}$	-0.3 -0.3	—	—	V	$V_{CC} = -5V, I_O = -100\mu A$
	DCX122LH DCX142JH	$V_{I(on)}$	—	—	-2.0 -2.0	V	$V_O = -0.3V, I_O = -20mA$ $V_O = -0.3V, I_O = -20mA$
Output Voltage		$V_{O(on)}$	—	—	-0.3V	V	$I_O/I_I = -5mA/-0.25mA$
Input Current	DCX122LH DCX142JH	$I_I$	—	—	-28 -13	mA	$V_I = -5V$
Output Current		$I_{O(off)}$	—	—	-0.5	$\mu A$	$V_{CC} = -50V, V_I = 0V$
DC Current Gain	DCX122LH DCX142JH	$G_I$	56 56	—	—	—	$V_O = -5V, I_O = -10mA$
Gain-Bandwidth Product*		$f_T$	—	200	—	MHZ	$V_{CE} = -10V, I_E = -5mA, f = 100MHz$

\* Transistor - For Reference Only

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified **R1-Only Types**

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		$BV_{CBO}$	-50	—	—	V	$I_C = -50\mu A$
Collector-Emitter Breakdown Voltage		$BV_{CEO}$	-40	—	—	V	$I_C = -1mA$
Emitter-Base Breakdown Voltage	DCX122TH DCX142TH	$BV_{EBO}$	-5	—	—	V	$I_E = -50\mu A$ $I_E = -50\mu A$
Collector Cutoff Current		$I_{CBO}$	—	—	-0.5	$\mu A$	$V_{CB} = -50V$
Emitter Cutoff Current	DCX122TH DCX142TH	$I_{EBO}$	— —	—	-0.5 -0.5	$\mu A$	$V_{EB} = -4V$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	—	-0.3	V	$I_C = -5mA, I_B = -0.25mA$
DC Current Transfer Ratio	DCX122TH DCX142TH	$h_{FE}$	100 100	250 250	600 600	—	$I_C = -1mA, V_{CE} = -5V$
Gain-Bandwidth Product*		$f_T$	—	200	—	MHZ	$V_{CE} = -10V, I_E = 5mA, f = 100MHz$

\* Transistor - For Reference Only

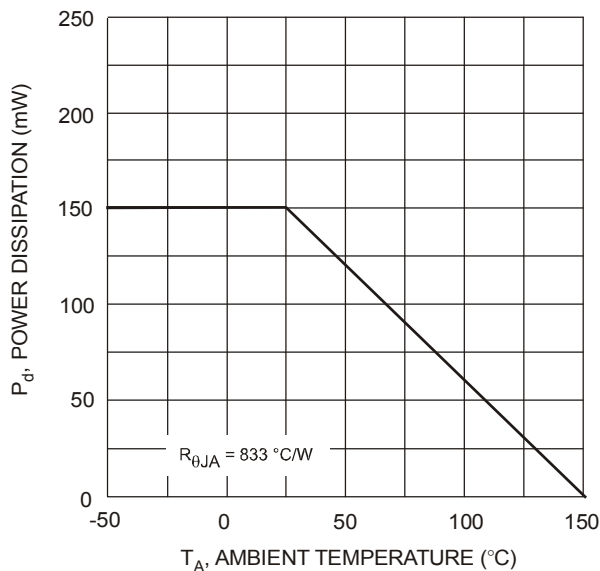


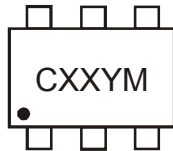
Fig. 1 Derating Curve - Total

## Ordering Information (Note 6)

Device	Packaging	Shipping
DCX122LH-7	SOT-563	3000/Tape & Reel
DCX142JH-7	SOT-563	3000/Tape & Reel
DCX122TH-7	SOT-563	3000/Tape & Reel
DCX142TH-7	SOT-563	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



CXX = Product Type Marking Code (See Page 1)  
 YM = Date Code Marking  
 Y = Year ex: T = 2006  
 M = Month ex: 9 = September

### Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	N	P	R	S	T	U	V	W	X	Y	Z

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

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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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