DCX (xxxx) U

COMPLEMENTARY NPN/PNP PRE-BIASED SMALL SIGNAL SOT-363 DUAL SURFACE MOUNT TRANSISTOR

NEW PRODUCT

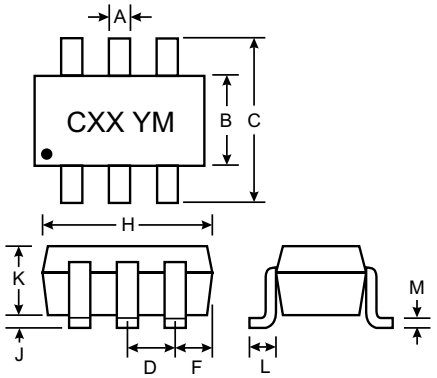
Features

UNDER DEVELOPMENT

- Epitaxial Planar Die Construction
- Built-In Biasing Resistors

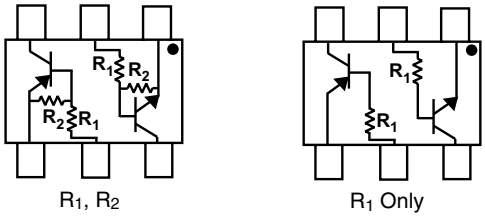
Mechanical Data

- Case: SOT-363, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.006 grams (approx.)



SOT-363		
Dim	**Min**	**Max**
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.80	2.20
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
All Dimensions in mm		

P/N	R1	R2	MARKING
DCX124EU	22K	22K	C17
DCX144EU	47K	47K	C20
DCX114YU	10K	47K	C14
DCX123JU	2.2K	47K	C06
DCX114EU	10K	10K	C13
DCX143TU	4.7K	-	C07
DCX114TU	10K	-	C12



SCHEMATIC DIAGRAM

Maximum Ratings NPN Section @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (1)		V_{CC}	50	V
Input Voltage, (2) to (1)	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU DCX143TU DCX114TU	V_{IN}	-10 to +40 -10 to +40 -6 to +40 -5 to +12 -10 to +40 -5 Vmax -5 Vmax	V
Output Current	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU DCX143TU DCX114TU	I_O	30 30 70 100 50 100 100	mA
Output Current	All	I_C (Max)	100	mA
Power Dissipation		P_d	200	mW
Operating and Storage and Temperature Range		T_j, T_{STG}	-55 to +150	°C

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Maximum Ratings PNP Section @ $T_A = 25°C$ unless otherwise specified

Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (1)		V_{CC}	50	V
Input Voltage, (2) to (1)	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU DCX143TU DCX114TU	V_{IN}	+10 to -40 +10 to -40 +6 to -40 +5 to -12 +10 to -40 +5 Vmax +5 Vmax	V
Output Current	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU DCX143TU DCX114TU	I_O	-30 -30 -70 -100 -50 -100 -100	mA
Output Current	All	I_C (Max)	-100	mA
Power Dissipation		P_d	200	mW
Operating and Storage and Temperature Range		T_j, T_{STG}	-55 to +150	°C

Electrical Characteristics NPN Section @ $T_A = 25°C$ unless otherwise specified

Characteristic (DDC143TU & DDC114TU only)	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}	50	—	—	V	$I_C = 1mA$
Emitter-Base Breakdown Voltage	BV_{EBO}	5	—	—	V	$I_E = 50\mu A$
Collector Cutoff Current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 50V$
Emitter Cutoff Current	I_{EBO}	—	—	0.5	μA	$V_{EB} = 4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_C/I_B = 2.5mA / 0.25mA$ DCX143TU $I_C/I_B = 1mA / 0.1mA$ DCX114TU
DC Current Transfer Ratio	h_{FE}	100	250	600	—	$I_C = 1mA$, $V_{CE} = 5V$
Gain-Bandwidth Product*	f_T	—	250	—	MHz	$V_{CE} = 10V$, $I_E = -5mA$, f = 100MHz

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	$V_{I(off)}$	0.5 0.5 0.3 0.5 0.5	1.1 1.1 — — 1.1	—	V	$V_{CC} = 5V$, $I_O = 100\mu A$
	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	$V_{I(on)}$	—	1.9 1.9 — — 1.9	3.0 3.0 1.4 1.1 3.0		$V_O = 0.3$, $I_O = 5mA$ $V_O = 0.3$, $I_O = 2mA$ $V_O = 0.3$, $I_O = 1mA$ $V_O = 0.3$, $I_O = 5mA$ $V_O = 0.3$, $I_O = 10mA$
Output Voltage	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	$V_{O(on)}$	—	0.1	0.3	V	$I_O/I_I = 10mA / 0.5mA$ $I_O/I_I = 10mA / 0.5mA$ $I_O/I_I = 5mA / 0.25mA$ $I_O/I_I = 5mA / 0.25mA$ $I_O/I_I = 10mA / 0.5mA$
Input Current	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	I_I	—	—	0.36 0.18 0.88 3.6 0.88	mA	$V_I = 5V$
Output Current		$I_{O(off)}$	—	—	0.5	μA	$V_{CC} = 50V$, $V_I = 0V$
DC Current Gain	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	G_I	56 68 68 80 30	—	—	—	$V_O = 5V$, $I_O = 5mA$ $V_O = 5V$, $I_O = 5mA$ $V_O = 5V$, $I_O = 10mA$ $V_O = 5V$, $I_O = 10mA$ $V_O = 5V$, $I_O = 5mA$
Gain-Bandwidth Product*		f_T	—	250	—	MHz	$V_{CE} = 10V$, $I_E = 5mA$, f = 100MHz

* Transistor - For Reference Only

UNDER DEVELOPMENT

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Electrical Characteristics PNP Section @ T_A = 25°C unless otherwise specified

Characteristic (DCX143TU & DCX114TU only)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	I_C = -50μA
Collector-Emitter Breakdown Voltage	BV_{CEO}	-50	—	—	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = -50μA
Collector Cutoff Current	I_{CBO}	—	—	-0.5	μA	V_{CB} = -50V
Emitter Cutoff Current	I_{EBO}	—	—	-0.5	μA	V_{EB} = -4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	-0.3	V	I_C/I_B = 2.5mA / 0.25mA DCX143TU I_C/I_B = 1mA / 0.1mA DCX114TU
DC Current Transfer Ratio	h_{FE}	100	250	600	—	I_C = -1mA, V_{CE} = -5V
Gain-Bandwidth Product*	f_T	—	250	—	MHz	V_{CE} = -10V, I_E = 5mA, f = 100MHz

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	$V_{I(off)}$	-0.5 -0.5 -0.3 -0.5 -0.5	-1.1 -1.1 — — –1.1	—	V	V_{CC} = -5V, I_O = -100μA
	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	$V_{I(on)}$	—	-1.9 -1.9 — — -1.9	-3.0 -3.0 -1.4 -1.1 -3.0		V_O = -0.3, I_O = -5mA V_O = -0.3, I_O =- 2mA V_O = -0.3, I_O = -1mA V_O = -0.3, I_O = -5mA V_O = -0.3, I_O = -10mA
Output Voltage	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	$V_{O(on)}$	—	-0.1	-0.3	V	I_O/I_I = -10mA / -0.5mA I_O/I_I = -10mA / -0.5mA I_O/I_I = -5mA / -0.25mA I_O/I_I = -5mA / -0.25mA I_O/I_I = -10mA /- 0.5mA
Input Current	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	I_I	—	—	-0.36 -0.18 -0.88 -3.6 -0.88	mA	V_I = -5V
Output Current		$I_{O(off)}$	—	—	-0.5	μA	V_{CC} = 50V, V_I = 0V
DC Current Gain	DCX124EU DCX144EU DCX114YU DCX123JU DCX114EU	G_I	56 68 68 80 30	—	—	—	V_O = -5V, I_O = -5mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -5mA
Gain-Bandwidth Product*		f_T	—	250	—	MHz	V_{CE} = -10V, I_E = -5mA, f = 100MHz

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