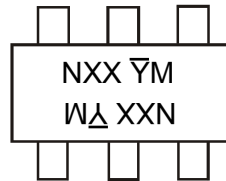


Marking Information

SOT363



NXX = Product Type Marking Code (See Ordering Information)
 YM = Date Code Marking
 Y = Year (ex: H = 2020)
 M = Month (ex: 9 = September)

Date Code Key

Year	2002	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Code	O	H	I	J	K	L	M	N	O	P	R

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

Characteristic	Symbol	Value	Unit
Supply Voltage, <Pin: (6) to (1) and (3) to (4)>	V _{CC}	50	V
Input Voltage, <Pin: (2) to (1) and (5) to (4)>	V _{IN}	DDC124EU -10 to +40 DDC144EU -10 to +40 DDC114YU -6 to +40 DDC123JU -5 to +12 DDC114EU -10 to +40 DDC113TU -5V max DDC143TU -5V max DDC114TU -5V max DDC143ZU -5 to +30 DDC115EU -10 to +40	V
Output Current	I _O	DDC124EU 30 DDC144EU 30 DDC114YU 70 DDC123JU 100 DDC114EU 50 DDC113TU 100 DDC143TU 100 DDC114TU 100 DDC143ZU 100 DDC115EU 20	mA
Output Current	I _{C(MAX)}	100	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 6 & 7)	P _D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	625	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 6. Mounted on FR-4 PC Board with minimum recommended pad layout.
 7. 150mW per element must not be exceeded.

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

For R1 Only Devices: DDC113TU & DDC143TU & DDC114TU

Characteristic	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 DDC143TU I _C /I _B = 1mA / 0.1mA DDC114TU I _C /I _B = 10mA / 1mA DDC113TU
DC Current Transfer Ratio	h _{FE}	100	250	600	—	I _C = 1mA, V _{CE} = 5V
Input Resistor (R ₁) Tolerance	ΔR ₁	-30	—	+30	%	—
Gain-Bandwidth Product (Note 8)	f _T	—	250	—	MHz	V _{CE} = 10V, I _E = -5mA, f = 100MHz

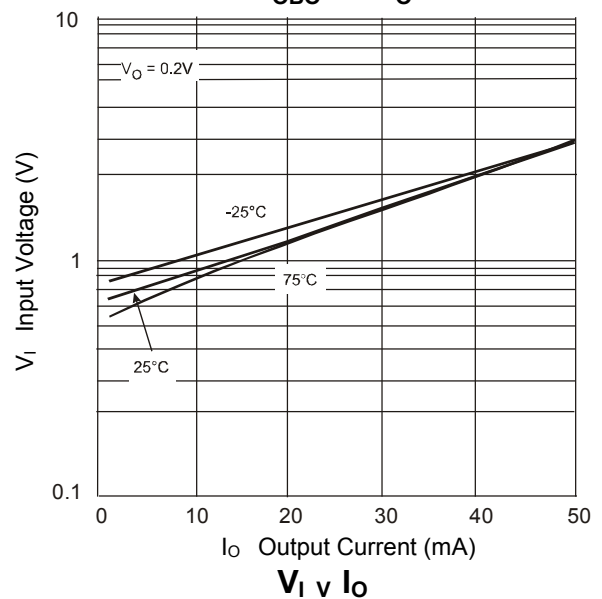
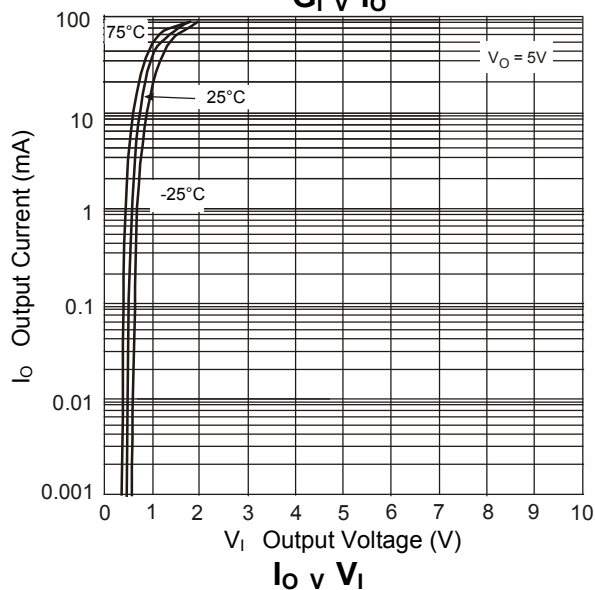
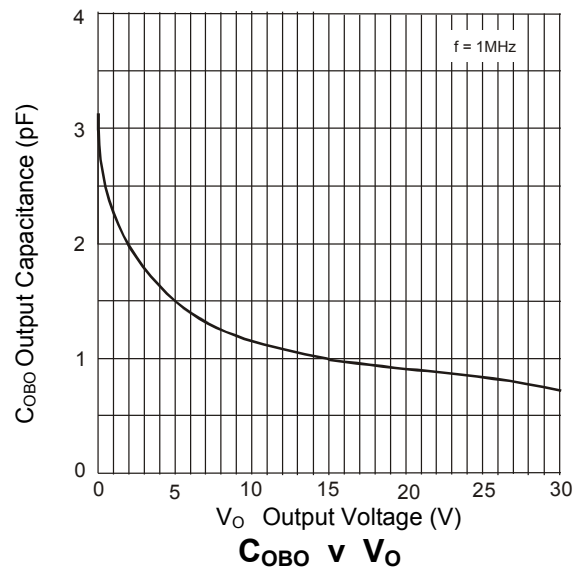
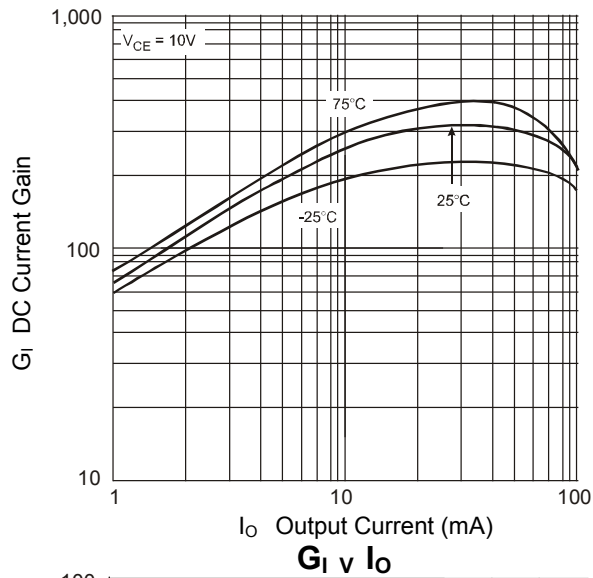
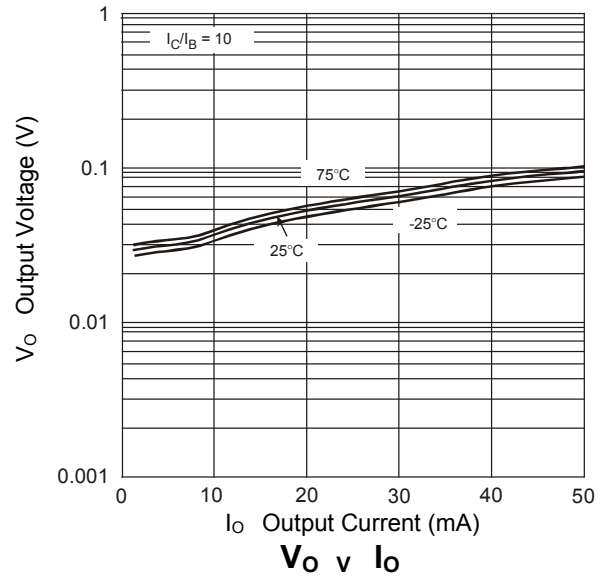
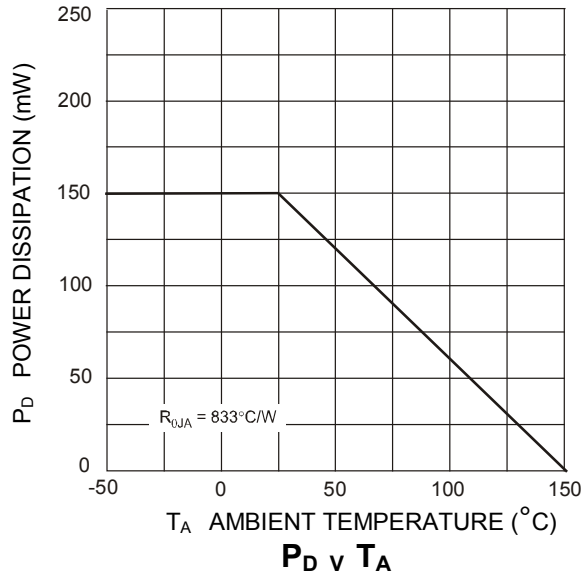
Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

For R1, R2 Devices: DDC124EU & DDC144EU & DDC114YU & DDC123JU & DDC114EU & DDC143ZU & DDC115EU

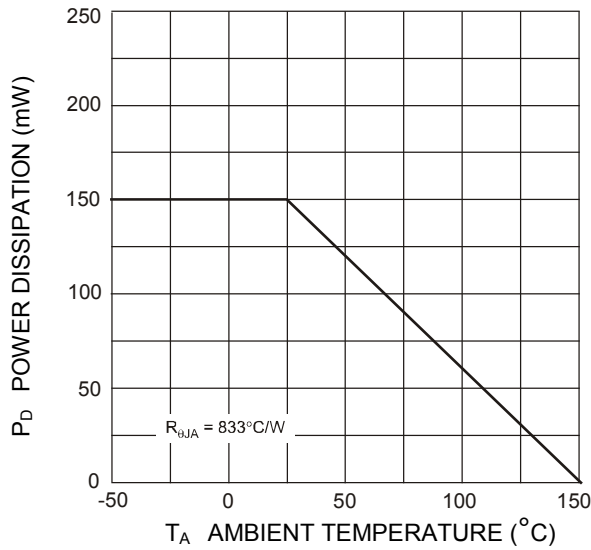
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU DDC143ZU DDC115EU	V _{I(OFF)}	0.5 0.5 0.3 0.5 0.5 0.5 0.5	1.1 1.1 — — 1.1 — —	—	V _{CC} = 5V, I _O = 100μA
	DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU DDC143ZU DDC115EU	V _{I(ON)}	—	1.9 1.9 — — 1.9 — —	3.0 3.0 1.4 1.1 3.0 1.3 3	V _O = 0.3V, I _O = 5mA V _O = 0.3V, I _O = 2mA V _O = 0.3V, I _O = 1mA V _O = 0.3V, I _O = 5mA V _O = 0.3V, I _O = 10mA V _O = 0.3V, I _O = 5mA V _O = 0.3V, I _O = 1mA
Output Voltage	DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU DDC143ZU DDC115EU	V _{O(ON)}	—	0.1	0.3	V I _O /I _L = 10mA / 0.5mA I _O /I _L = 10mA / 0.5mA I _O /I _L = 5mA / 0.25mA I _O /I _L = 5mA / 0.25mA I _O /I _L = 10mA / 0.5mA I _O /I _L = 5mA / 0.25mA I _O /I _L = 10mA / 0.5mA
Input Current	DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU DDC143ZU DDC115EU	I _I	—	—	0.36 0.18 0.88 3.6 0.88 1.8 0.15	mA V _I = 5V
Output Current		I _{O(OFF)}	—	—	0.5	μA V _{CC} = 50V, V _I = 0V
DC Current Gain	DDC124EU DDC144EU DDC114YU DDC114YUQ DDC123JU DDC114EU DDC143ZU DDC115EU	G _I	56 68 68 80 80 30 80 82	—	—	— V _O = 5V, I _O = 5mA V _O = 5V, I _O = 5mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 5mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 5mA V _O = 5V, I _O = 10mA V _O = 5V, I _O = 5mA
Input Resistor (R ₁) Tolerance	ΔR ₁	-30	—	+30	%	—
Resistance Ratio Tolerance	Δ(R ₂ /R ₁)	-20	—	+20	%	—
Gain-Bandwidth Product (Note 8)	f _T	—	250	—	MHz	V _{CE} = 10V, I _E = 5mA, f = 100MHz

Note: 8. Transistor - for reference only.

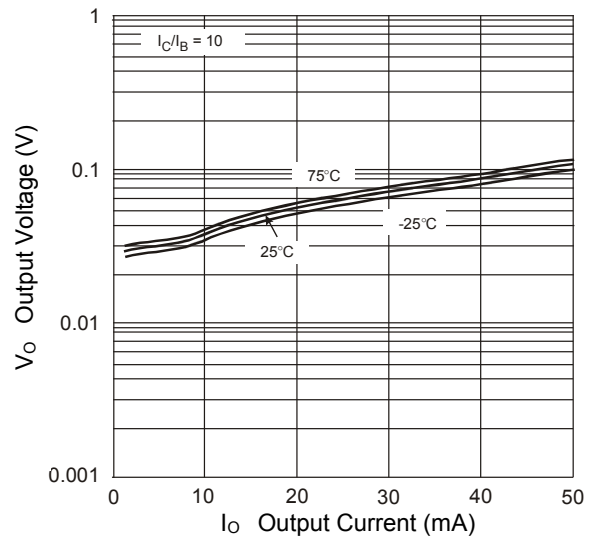
Typical Curves – DDC123JU (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



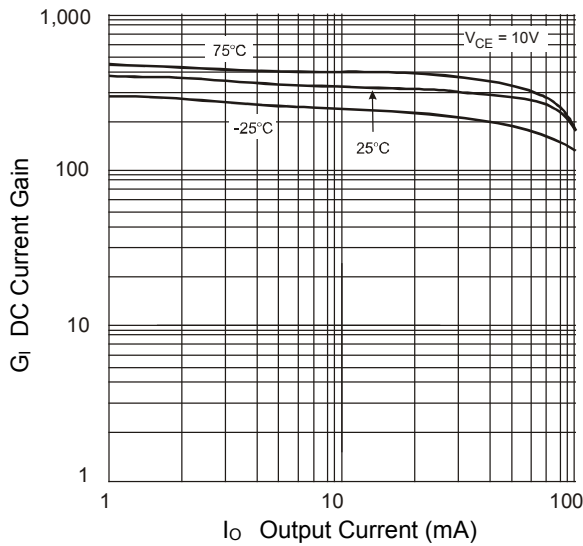
Typical Curves – DDC114YU (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



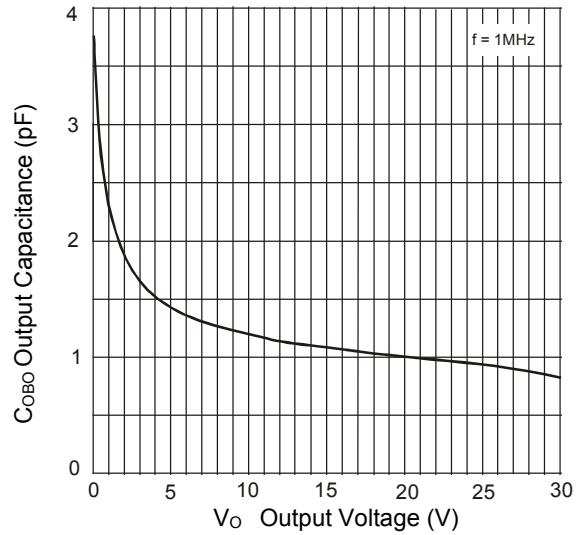
$P_D \text{ v } T_A$



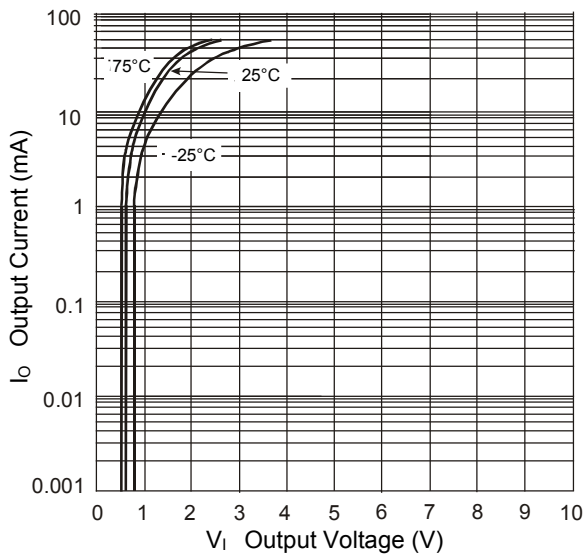
$V_O \text{ v } I_O$



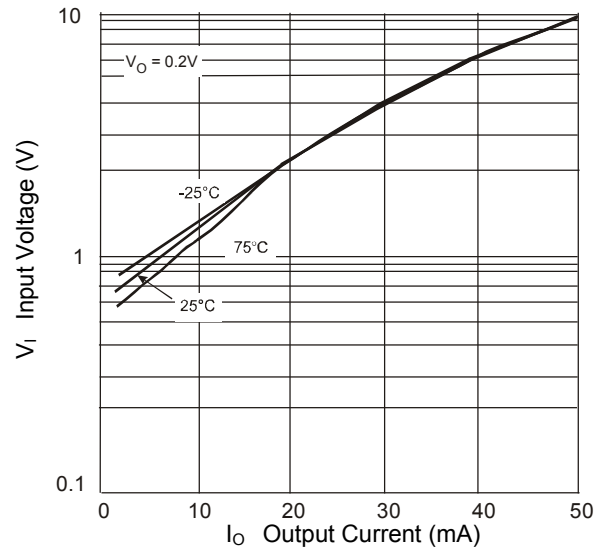
$G_I \text{ v } I_O$



$C_{OBO} \text{ v } V_O$

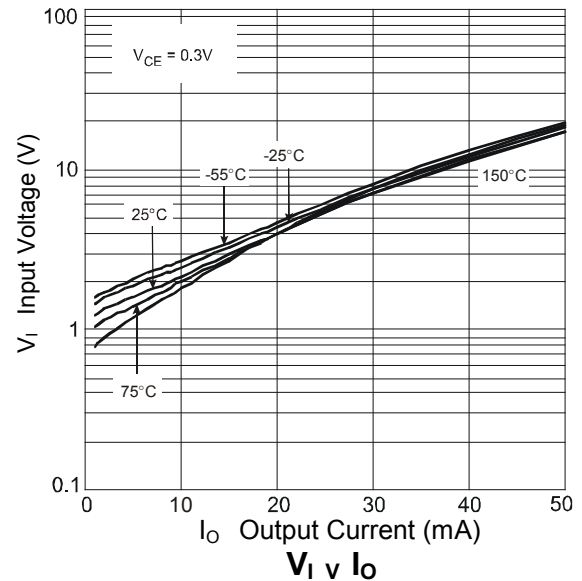
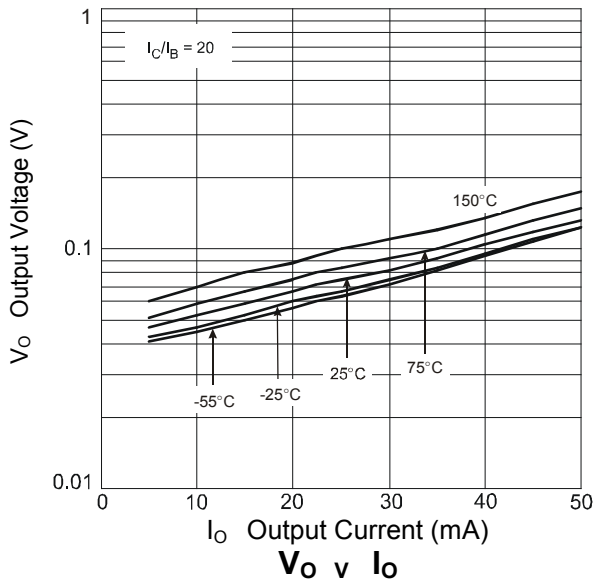
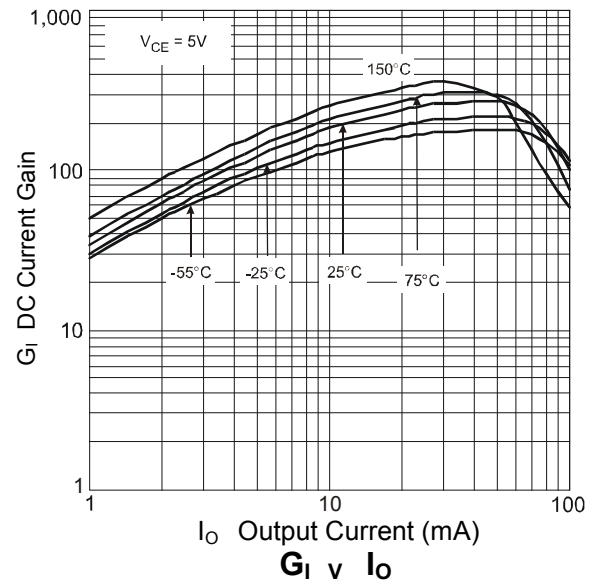
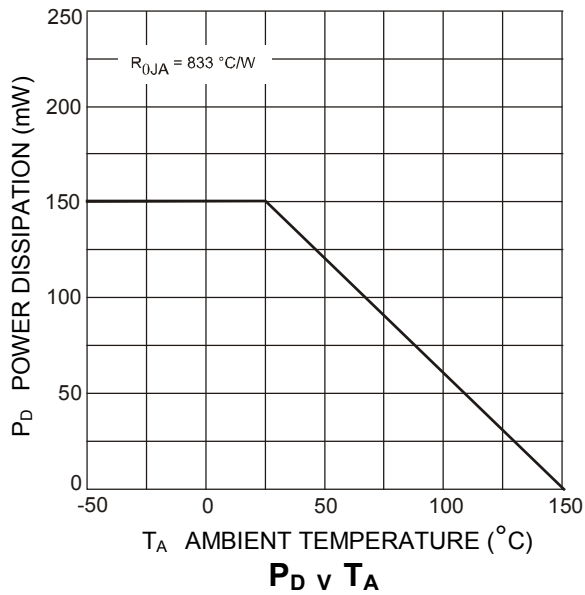


$I_O \text{ v } V_I$



$V_I \text{ v } I_O$

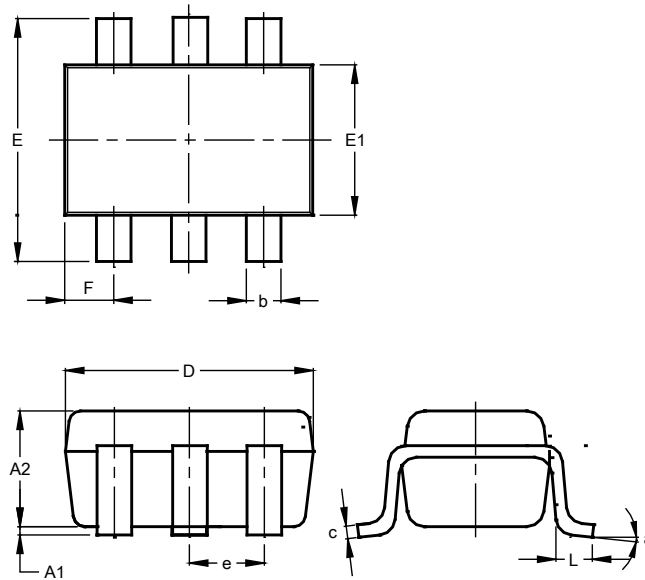
Typical Curves – DDC124EU (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

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

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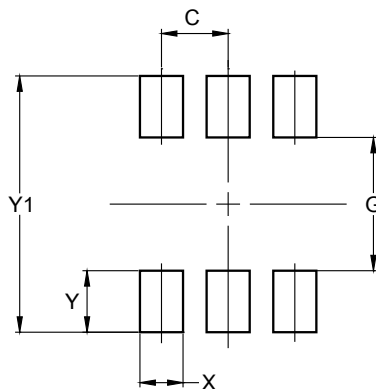


SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

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

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