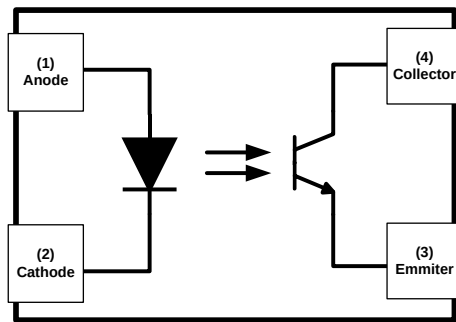


Product Summary

BV _{CEO} (V)	CTR (Min)	Isolation Voltage (V _{rms})	Operating Temperature (°C)
80	50%	5,000	-55 to +110

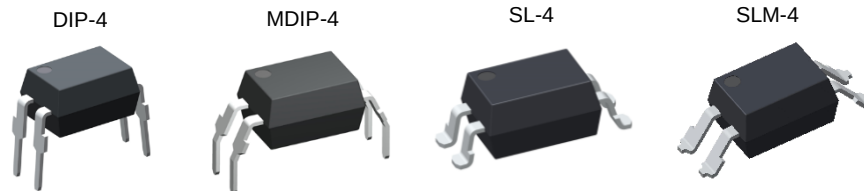


Features

- Current Transfer Ratio (CTR: min 50% at I_F = 5mA, V_{CE} = 5V)
- High Input-Output Isolation Voltage (V_{iso} = 5,000V_{rms})
- Safety Approval UL1577, No. E536221
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/contact-us) or your local Diodes representative.
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: DIP-4, MDIP-4, SL-4, SLM-4
- Package Material: Molded Plastic, "Green" Mold Compound.
UL Flammability Classification 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin-Plated Leads, Solderable per MIL-STD-202, Method 208 
- Polarity Indicator: Dot for Pin 1 Identification
- Weight: 0.216 grams (Approximate)



Ordering Information (Notes 4 & 5)

Part Number	Package	Packing	
		Qty.	Carrier
DPC816D-x-TU	DIP-4	100pcs	Tube
DPC816W-x-TU	MDIP-4	100pcs	Tube
DPC816D-x-TU-V	DIP-4 (VDE Parts)	100pcs	Tube
DPC816W-x-TU-V	MDIP-4 (VDE Parts)	100pcs	Tube
DPC816S-x-TR	SL-4	2,000pcs	Reel
DPC816L-x-TR	SLM-4	2,000pcs	Reel
DPC816S-x-TR-V	SL-4 (VDE Parts)	2,000pcs	Reel
DPC816L-x-TR-V	SLM-4 (VDE Parts)	2,000pcs	Reel

- 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 5. x is CTR rank, symbol: A, B, C, X, Y.

Marking Information



 = Manufacturer's Code Marking
 816 = Product Type Marking Code
 Z = CTR Rank Code
 V = VDE Safety Mark Option
 Y = Last Digit of Year (ex: 4 = 2024)
 WW = Week Code (01 to 53)

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

Characteristic		Symbol	Value	Unit
Input	Forward Current	I _F	60	mA
	Reverse Voltage	V _R	6	V
	Power Dissipation	P	100	mW
	Peak Forward Current ($< 1\mu\text{s}$ Pulse Width, 300pps)	I _{FP}	1	A
Output	Collector – Emitter Voltage	V _{CEO}	80	V
	Emitter – Collector Voltage	V _{ECO}	6	V
	Collector Current	I _C	50	mA
	Collector Power Dissipation	P _C	150	mW
Total Power Dissipation		P _{tot}	200	mW
Isolation Voltage		V _{iso}	5000	V _{RMS}
Operating Temperature		T _{opr}	-55 to +110	°C
Storage Temperature		T _{stg}	-55 to +125	°C
Soldering Temperature		T _{sol}	+260	°C

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

Characteristic		Test Condition	Symbol	Min	Typ	Max	Unit
Input	Forward Voltage	I _F = 20mA	V _F	—	1.25	1.5	V
	Reverse Current	V _R = 4V	I _R	—	—	10	μA
	Terminal Capacitance	V = 0, f = 1kHz	C _t	—	30	—	pF
Output	Collector – Emitter Current	V _{CE} = 20V, I _F = 0	I _{CEO}	—	—	50	nA
	Collector – Emitter Breakdown Voltage	I _C = 0.1mA, I _F = 0	BV _{CEO}	80	—	—	V
	Emitter – Collector Breakdown Voltage	I _E = 0.1mA, I _F = 0	BV _{ECO}	6	—	—	V
Transfer Characteristics	Collector Current	I _F = 5mA, V _{CE} = 5V	I _C	2.5	—	30	mA
	Current Transfer Ratio	I _F = 5mA, V _{CE} = 5V	CTR	50	—	600	%
	Collector – Emitter Saturation Voltage	I _F = 20mA, I _C = 1mA	V _{CE(sat)}	—	0.1	0.2	V
	Isolation Resistance	DC500V, 40% to 60% R.H	R _{iso}	5 x 10 ¹⁰	1 x 10 ¹¹	—	Ω
	Floating Capacitance	V = 0, f = 1MHz	C _f	—	0.6	1	pF
	Cutoff Frequency	V _{CE} = 5V, I _C = 2mA R _L = 100Ω, -3dB	f _c	—	80	—	kHz
	Response Time (Rise)	V _{CE} = 2V, I _C = 2mA	t _r	—	—	18	μs
	Response Time (Fall)	R _L = 100Ω	t _f	—	—	18	μs

Rank Table of Current Transfer Ratio (Note 6)

Characteristic	Test Condition	Symbol	Min	Max	Unit
CTR Rank	I _F = 5mA, V _{CE} = 5V T _A = +25°C	A	80	160	%
		B	130	260	%
		C	200	400	%
		X	100	200	%
		Y	150	300	%

Note: 6. CTR = I_C / I_F x 100%

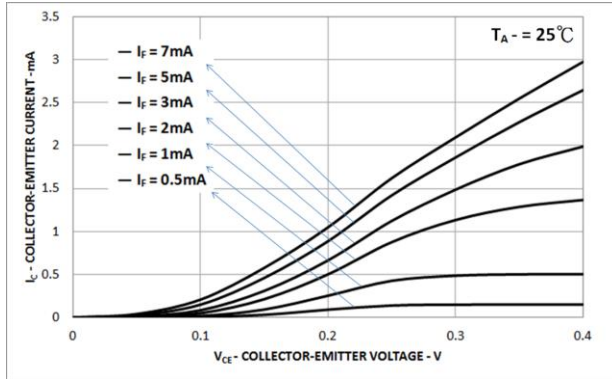


Figure 1. Collector-Emitter Saturation Voltage vs. Forward Current

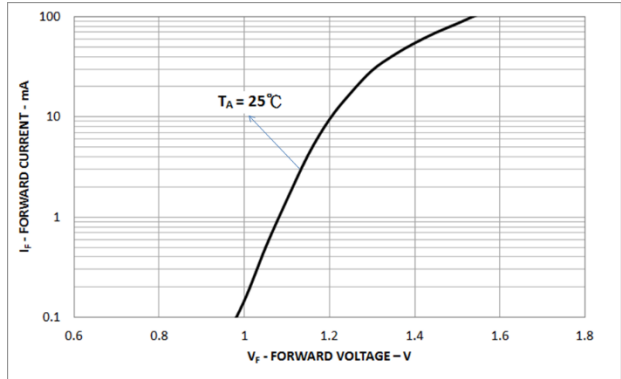


Figure 2. Forward Current vs. Forward Voltage

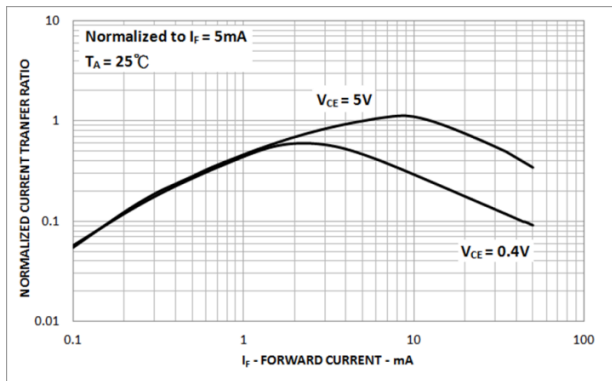


Figure 3. Current Transfer vs. Forward Current

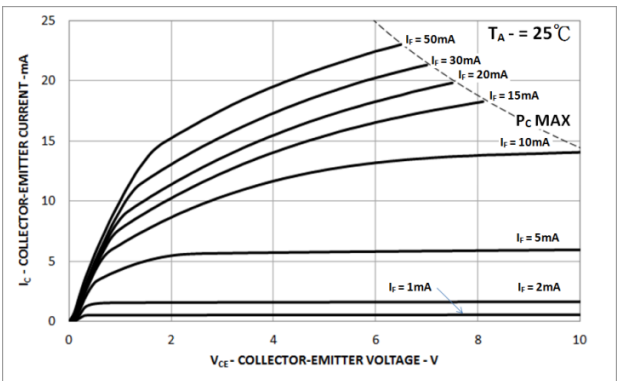


Figure 4. Collector Current vs. Collector-Emitter Voltage

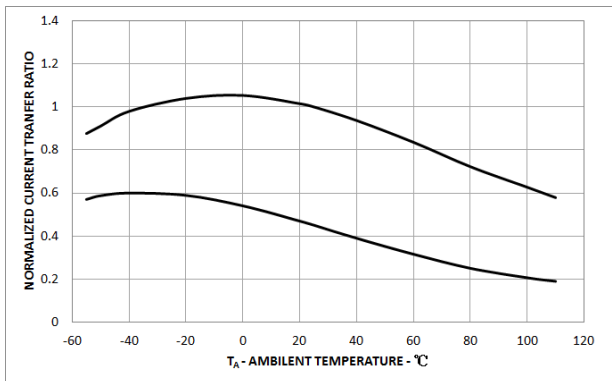


Figure 5. Relative Current Transfer Ratio vs. Ambient Temperature

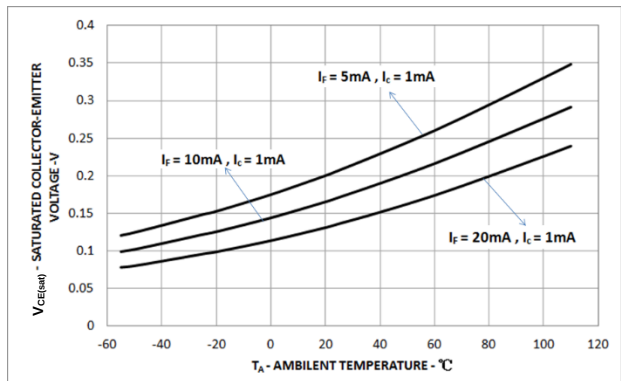


Figure 6. Collector-Emitters Saturation Voltage vs. Ambient Temperature

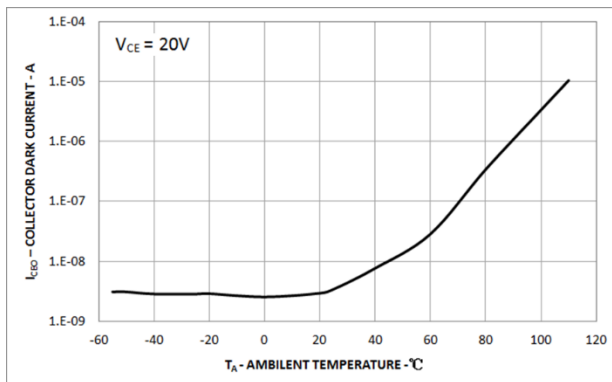


Figure 7. Collector Dark Current vs. Ambient Temperature

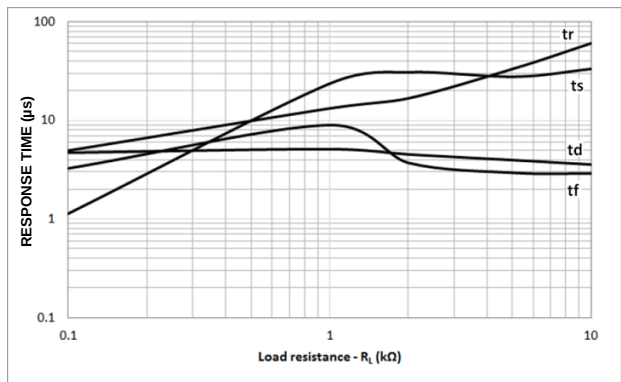
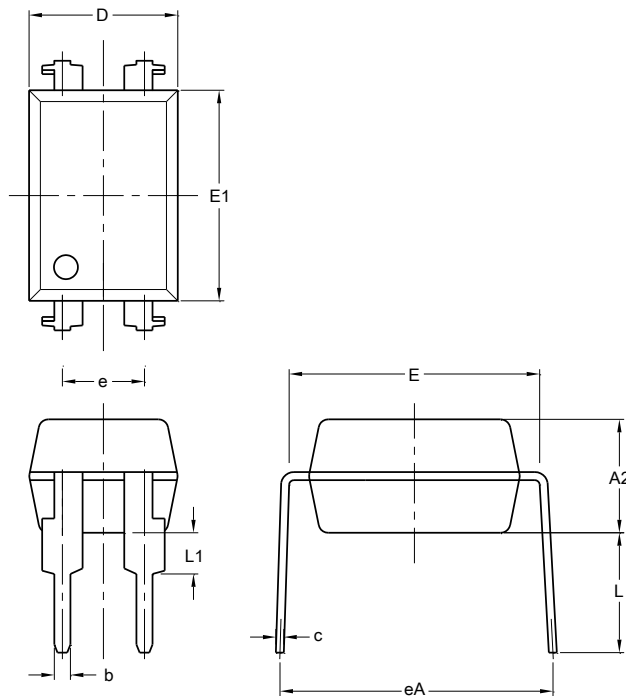


Figure 8. Response Time vs. Load Resistance

Package Outline Dimensions

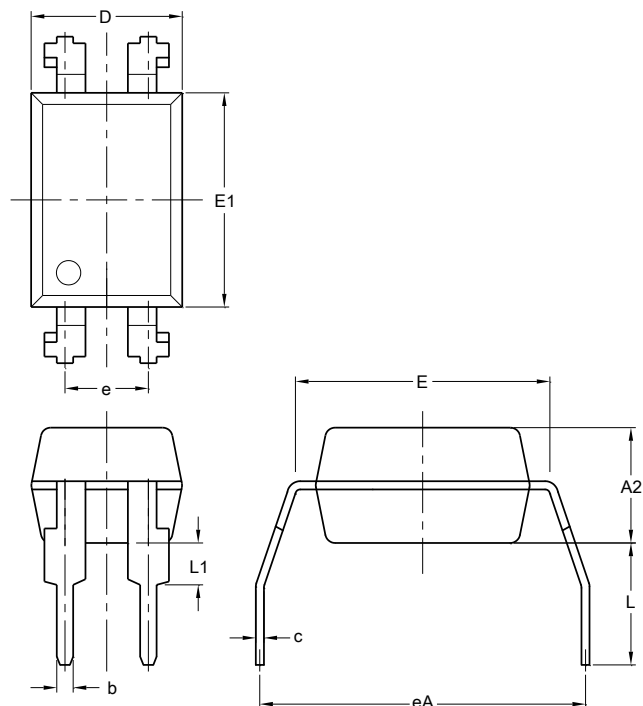
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

DIP-4



DIP-4			
Dim	Min	Max	Typ
A2	3.20	3.80	3.50
b	0.40	0.60	0.50
c	0.15	0.35	0.25
D	4.30	4.90	4.60
E	7.32	7.92	7.62
E1	6.20	6.80	6.50
eA	8.07	9.07	8.57
e	2.29	2.79	2.54
L	3.40	4.00	3.70
L1	0.67	1.27	0.97
All Dimensions in mm			

MDIP-4

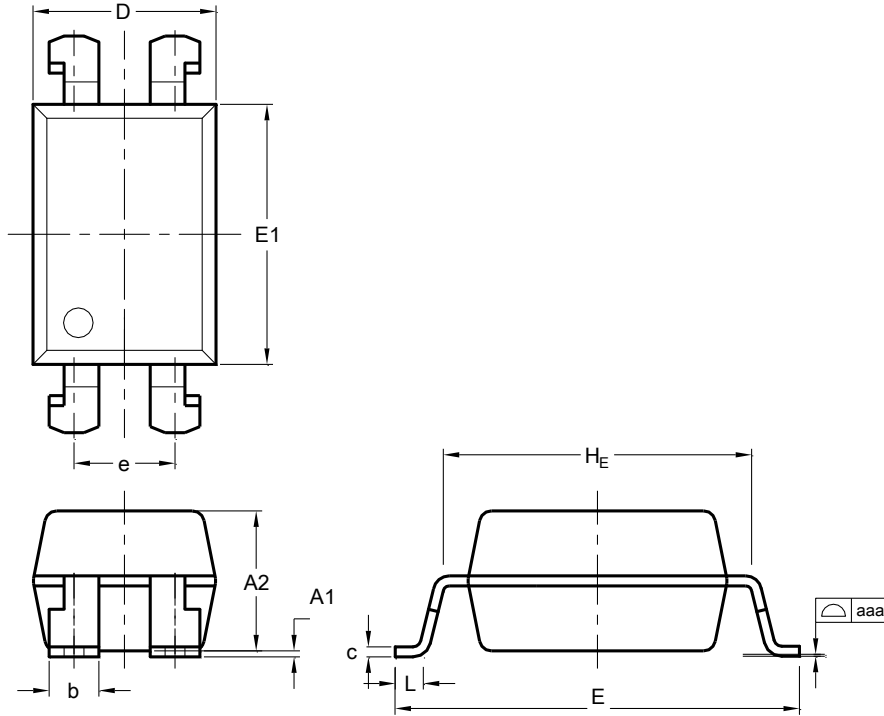


MDIP-4			
Dim	Min	Max	Typ
A2	3.20	3.80	3.50
b	0.40	0.60	0.50
c	0.15	0.35	0.25
D	4.30	4.90	4.60
E	7.32	7.92	7.62
E1	6.20	6.80	6.50
eA	9.66	10.66	10.16
e	2.29	2.79	2.54
L	3.40	4.00	3.70
L1	0.67	1.27	0.97
All Dimensions in mm			

Package Outline Dimensions (continued)

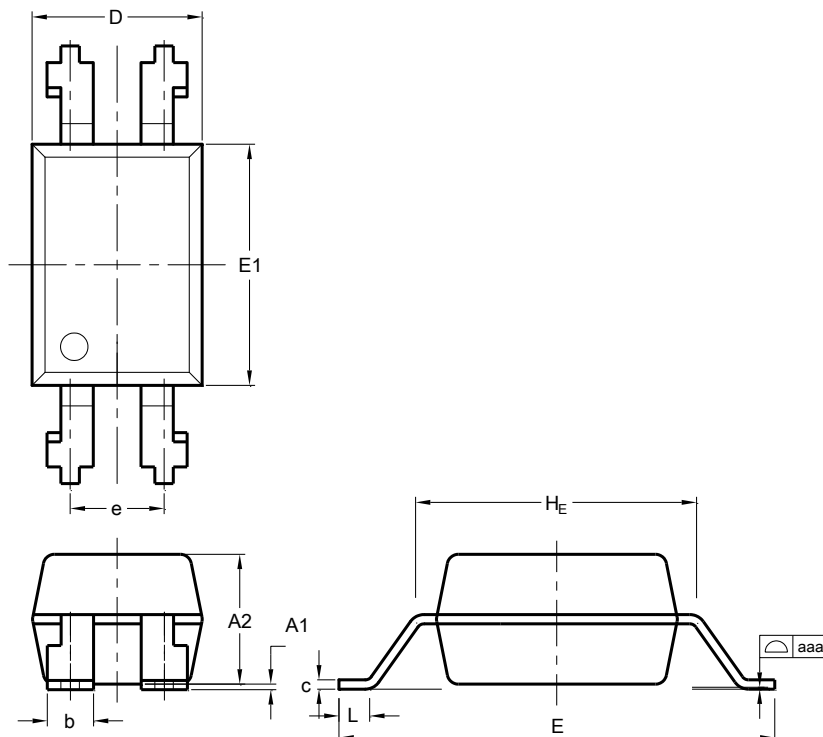
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SL-4



SL-4			
Dim	Min	Max	Typ
A1	0.00	0.30	0.15
A2	3.20	3.80	3.50
b	1.15	1.35	1.25
c	0.15	0.35	0.25
D	4.30	4.90	4.60
E	9.86	10.46	10.16
E1	6.20	6.80	6.50
e	2.29	2.79	2.54
H _E	7.32	7.92	7.62
L	0.60	--	--
aaa	--	0.10	--
All Dimensions in mm			

SLM-4

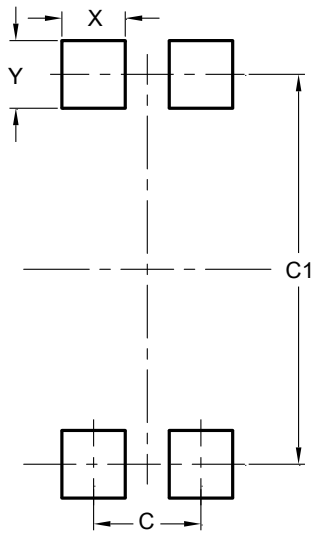


SLM-4			
Dim	Min	Max	Typ
A1	0.00	0.30	0.15
A2	3.20	3.80	3.50
b	1.15	1.35	1.25
c	0.15	0.35	0.25
D	4.30	4.90	4.60
E	11.50	12.10	11.88
E1	6.20	6.80	6.50
e	2.29	2.79	2.54
H _E	7.32	7.92	7.62
L	0.60	--	--
aaa	--	0.10	--
All Dimensions in mm			

Suggested Pad Layout

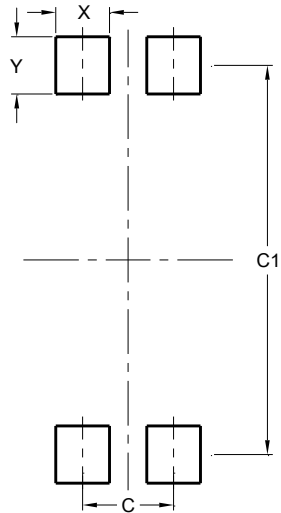
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SL-4



Dimensions	Value (in mm)
C	2.54
C1	9.22
X	1.50
Y	1.60

SLM-4



Dimensions	Value (in mm)
C	2.54
C1	10.86
X	1.50
Y	1.60

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