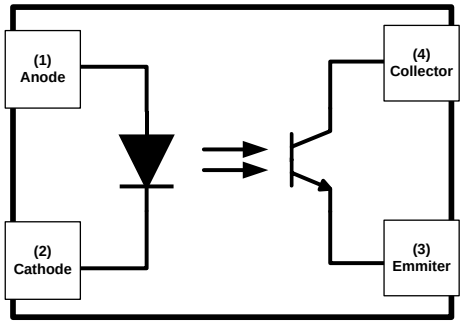
Product Summary

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



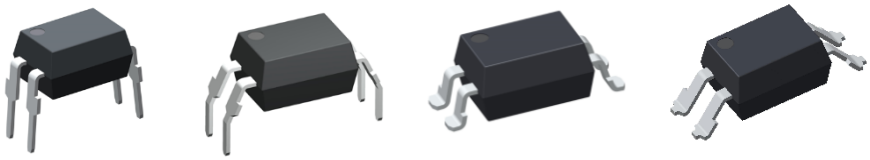
Features

- Current Transfer Ratio (CTR: min 50% at I_F = 5mA, V_{CE} = 5V)
- High Input-Output Isolation Voltage (V_{iso} = 5,000Vrms)
- 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 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 e3
- Polarity Indicator: Dot for Pin 1 Identification
- Weight: 0.216 grams (Approximate)

DIP-4 MDIP-4 SL-4 SLM-4

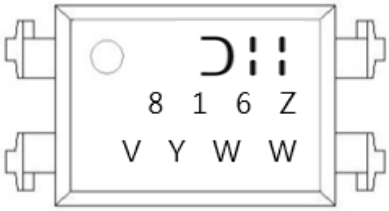


Ordering Information (Notes 4 & 5)

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 (< 1µs 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}	5×10^{10}	1×10^{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 R_L = 100Ω	t_r	—	—	18	µs
	Response Time (Fall)		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%

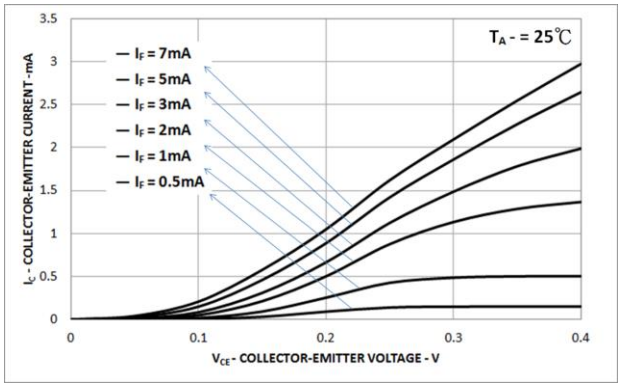


Figure 1. Collector-Emitter Saturation Voltage vs. Forward Current

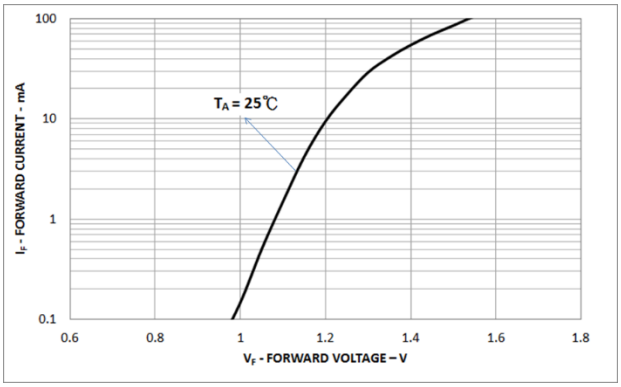


Figure 2. Forward Current vs. Forward Voltage

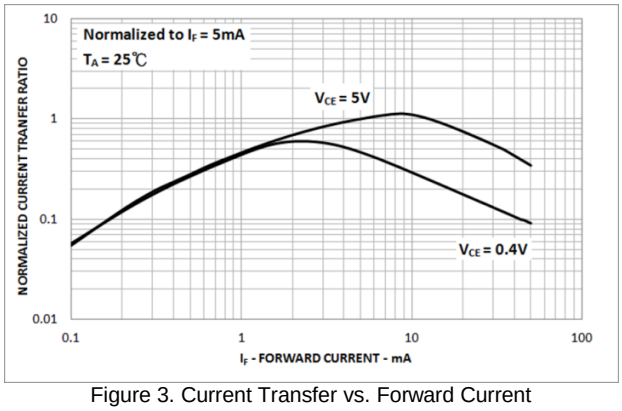


Figure 3. Current Transfer vs. Forward Current

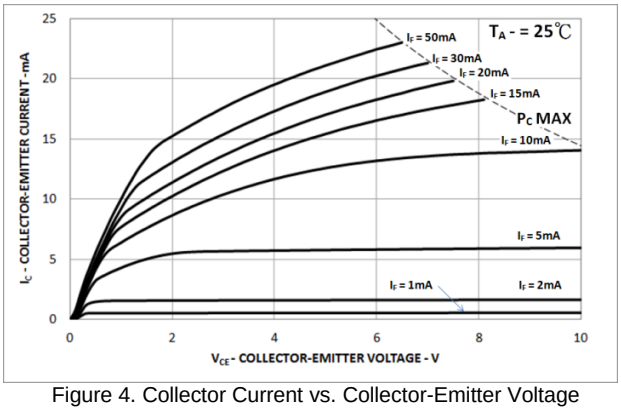


Figure 4. Collector Current vs. Collector-Emitter Voltage

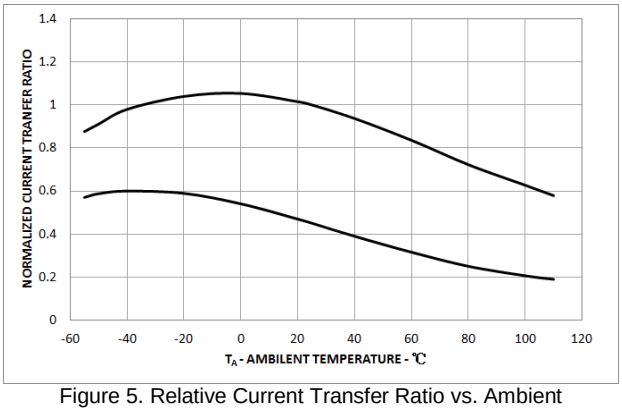


Figure 5. Relative Current Transfer Ratio vs. Ambient Temperature

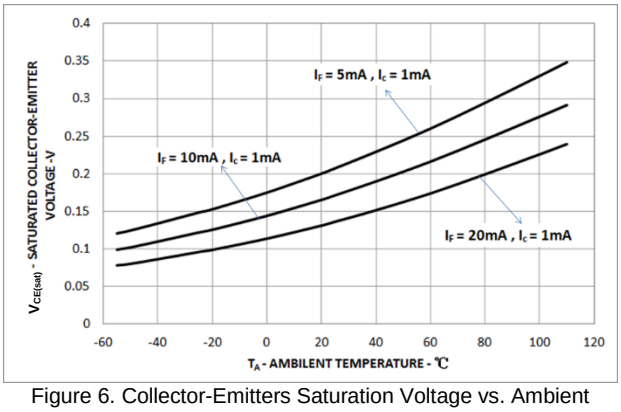


Figure 6. Collector-Emitters Saturation Voltage vs. Ambient Temperature

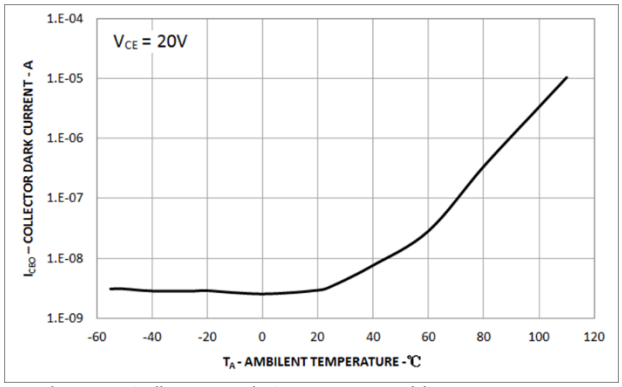


Figure 7. Collector Dark Current vs. Ambient Temperature

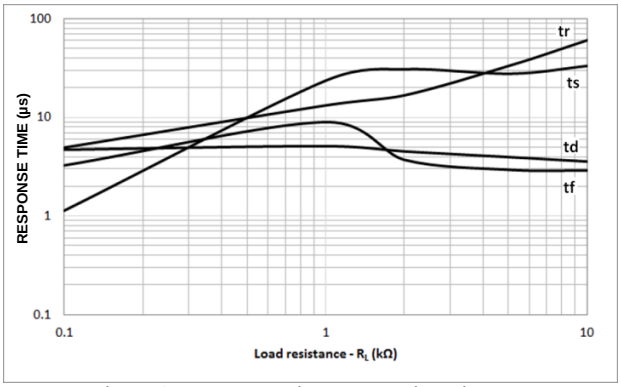
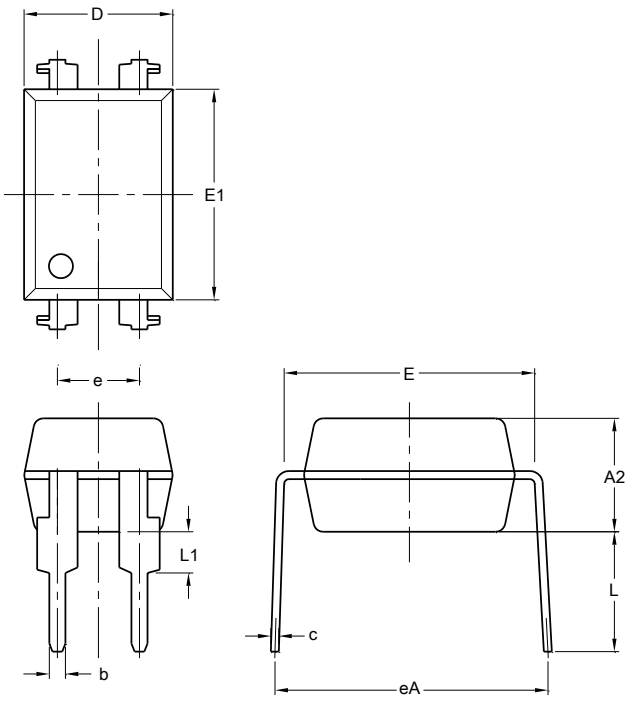


Figure 8. Response Time vs. Load Resistance

Package Outline Dimensions

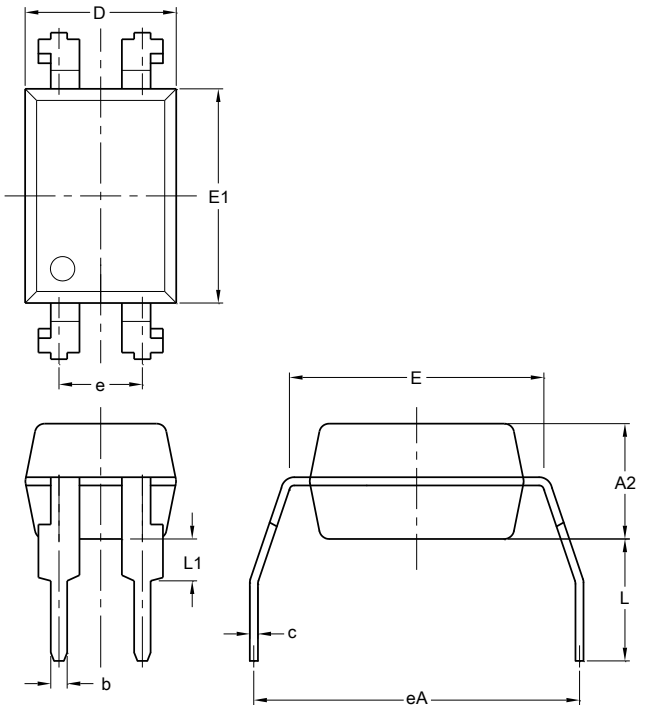
Please see http://www.diodes.com/package-outlines.html for the latest version.

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

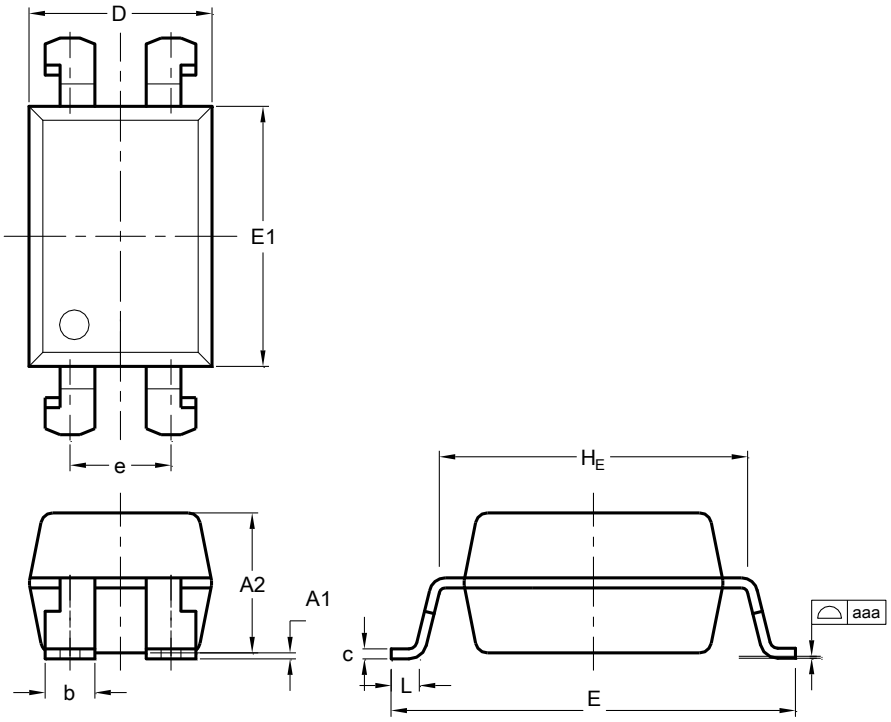


MDIP-4			
Dim	**Min**	**Max**	**Typ**
A2	3.20	3.80	3.50
b	0.40	0.60	0.50
c	0.15	0.35	0.25
D	4.30	4.90	4.60
E	7.32	7.92	7.62
E1	6.20	6.80	6.50
eA	9.66	10.66	10.16
e	2.29	2.79	2.54
L	3.40	4.00	3.70
L1	0.67	1.27	0.97
All Dimensions in mm			

Package Outline Dimensions (continued)

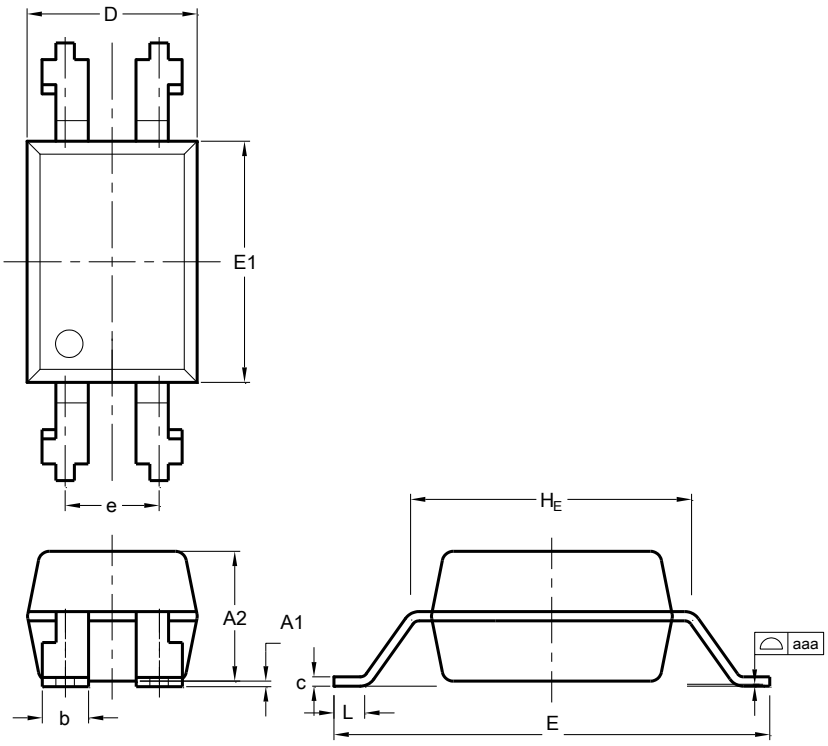
Please see http://www.diodes.com/package-outlines.html for the latest version.

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

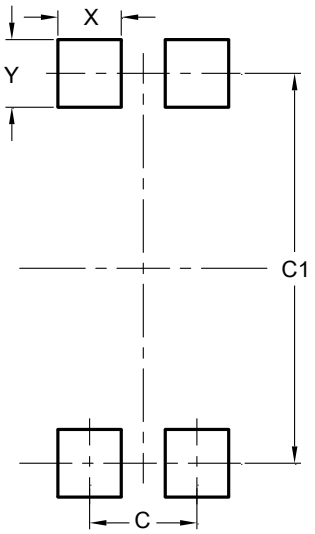


SLM-4			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.30	0.15
A2	3.20	3.80	3.50
b	1.15	1.35	1.25
c	0.15	0.35	0.25
D	4.30	4.90	4.60
E	11.50	12.10	11.88
E1	6.20	6.80	6.50
e	2.29	2.79	2.54
H_E	7.32	7.92	7.62
L	0.60	--	--
aaa	--	0.10	--
All Dimensions in mm			

Suggested Pad Layout

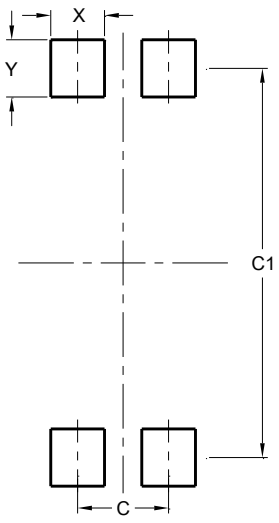
Please see http://www.diodes.com/package-outlines.html for the latest version.

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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