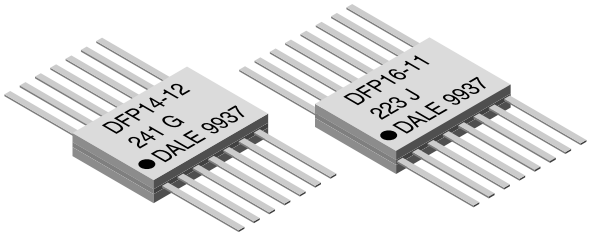
Thick Film Resistor Networks
Flat Pack, 11, 12 Schematics



FEATURES

- 11 and 12 Schematics
- 0.065" [1.65 mm] height for high density packaging
- Low temperature coefficient (- 55 °C to + 125 °C) ± 100 ppm/°C
- Hot solder dipped leads
- Highly stable thick film
- Wide resistance range
- All devices are capable of passing the MIL-STD-202, Method 210, Condition C "Resistance to Soldering Heat" test

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING $P_{25\,°C}$ ELEMENT W	POWER RATING $P_{25\,°C}$ PACKAGE W	CIRCUIT SCHEMATIC	LIMITING ELEMENT VOLTAGE MAX. V≅	TEMPERATURE[1] COEFFICIENT ppm/°C	STANDARD[2] TOLERANCE %	RESISTANCE RANGE Ω	TEMPERATURE COEFFICIENT TRACKING ppm/°C
DFP	0.25	0.65	11	75	± 100	2	10 - 1M	50
	0.15	0.65	12	75	± 100	2	10 - 1M	50

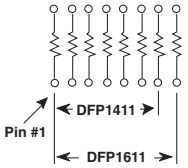
Notes

1. Temperature Range: - 55 °C to + 125 °C
2. ± 1 % and ± 5 % tolerance available

- Consult factory for stocked values

TECHNICAL SPECIFICATIONS

11 Schematic

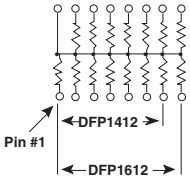


7 or 8 isolated resistors

The DFPxx11 provides the user with 7 or 8 nominally equal resistors with each resistor isolated from all others. Commonly used in the following applications:

- "Wired OR" Pull-up
- Power Driven Pull-up
- Power Gate Pull-up
- Line Termination
- Long-line Impedance Balancing
- LED Current Limiting
- ECL Output Pull-down
- TTL Input Pull-down

12 Schematic



13 or 15 resistors with one pin common

The DFPxx12 provides the user with a choice of 13 or 15 nominally equal resistors, each connected to a common pin (14 or 16). Commonly used in the following applications:

- MOS/ROM Pull-up/Pull-down
- Open Collector Pull-up
- "Wired OR" Pull-up
- Power Driven Pull-up
- TTL Input Pull-down
- Digital Pulse Squaring
- TTL Unused Gate Pull-up
- High Speed Parallel Pull-up

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: DFP14121K00GD05 (preferred part numbering format)

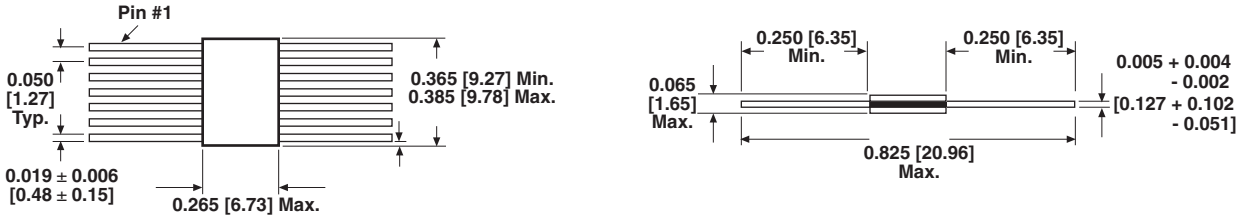
D	F	P	1	4	1	2	1	K	0	0	G	D	0	5			

GLOBAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
DFP	**14** **16**	**11** = Isolated **12** = Bussed	**R** = Decimal **K** = Thousand **M** = Million **10R0** = 10 Ω **680K** = 680 kΩ **1M00** = 1.0 MΩ	**F** = ± 1 % **G** = ± 2 % **J** = ± 5 %	**E05** = Lead (Pb)-free, Tube **D05** = Tin/Lead, Tube	Blank = Standard (Dash Number) (up to 3 digits) From **1-999** as applicable

Historical Part Number example: DFP1412102G (will continue to be accepted)

DFP	14	12	102	G	D05
HISTORICAL MODEL	PIN COUNT	SCHEMATIC	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

DIMENSIONS in inches [millimeters]



GLOBAL MODEL	DIMENSION A
DFP14	0.037 ± 0.010 [0.94 ± 0.25]
DFP16	0.012 ± 0.010 [0.30 ± 0.25]

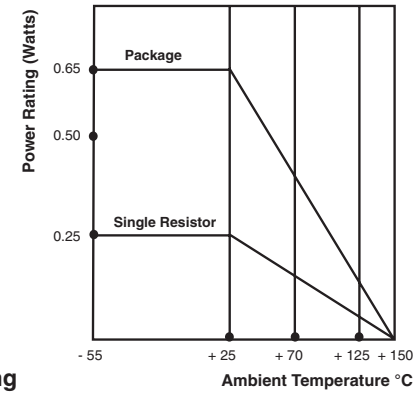
TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	DFP14/16
Isolation Resistance 11 Schematic	MΩ	> 100
Voltage Coefficient of Resistance	ppm/V	< 50 typical
Maximum Operating Voltage	VDC	75
Operating Temperature Range	°C	- 55 to + 125
Storage Temperature Range	°C	- 55 to + 150

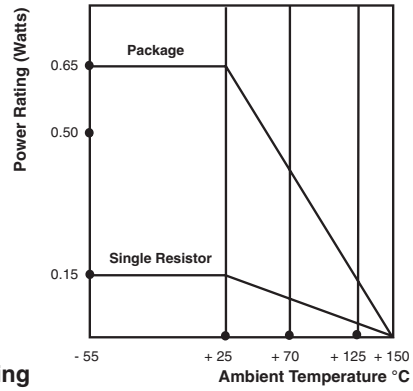
MECHANICAL SPECIFICATIONS

Marking	Model number, schematic number, value tolerance, pin 1 indicator, date code.
Marking Resistance to Solvents	Permanency testing per MIL-STD-202 Method 215.
Solderability	Per MIL-STD-202, Method 208E.
Terminals	Per MIL-STD-1276 DFPxx11, DFPxx12 = Type G (hot solder dipped). Hot solder dipped leads supplied as standard finish.
Body	Epoxy filled ceramic sandwich

11 Schematic



12 Schematic



PERFORMANCE

TEST	CONDITIONS	MAX. ΔR (Typical Test Lots)
Power Conditioning	1.5 x rated power, applied 1.5 hours “ON” and 0.5 hour “OFF” for 100 hours ± 4 hours at + 25 °C ambient temperature	± 0.50 % ΔR
Thermal Shock	5 cycles between - 65 °C and + 125 °C	± 0.50 % ΔR
Short Time Overload	2.5 x rated working voltage, 5 seconds	± 0.25 % ΔR
Low Temperature Operation	45 minutes at full rated working voltage at - 65 °C	± 0.25 % ΔR
Moisture Resistance	240 hours with humidity ranging from 80 % RH to 98 % RH	± 0.50 % ΔR
Resistance to Soldering Heat	Leads immersed in + 260 ° ΔC solder to within 1/16" of body for 10 seconds	± 0.25 % ΔR
Shock	Total of 18 shocks at 100 g's	± 0.25 % ΔR
Vibration	12 hours at maximum of 20 g's between 10 and 2000 Hz	± 0.25 % ΔR
Load Life	1000 hours at + 70 °C, rated power applied 1.5 hours “ON”, 0.5 hour “OFF” for full 1000 hour period. Derated according to the curve.	± 0.50 % ΔR
Terminal Strength	1.5 pound pull for 30 seconds	± 0.25 % ΔR
Insulation Resistance	10 000 Megohm (minimum)	-
Dielectric Withstanding Voltage	No evidence of arcing or damage (200 V RMS for 1 minute)	-

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.