



SPECIFICATION FOR APPROVAL

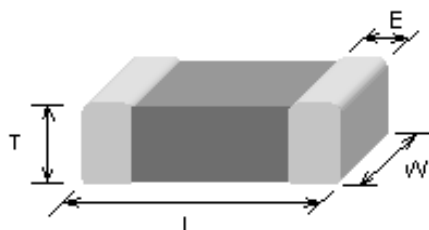
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PRODUCT DETAIL

Electrical Characteristics			Test Instruments
L	See Page 7-9	TEST FREQ: See Page 7-9	•HP4291B RF IMPEDANCE / MATERIAL ANALYZER •HP4338A/B MILLIOHMMETER •Agilent 8720ES S-PARAMETER NETWORK ANALYZER •HP6632B SYSTEM DC POWER SUPPLY
Q	See Page 7-9		
SRF	See Page 7-9	TEST LEVEL: See Page 7-9	
DCR	See Page 7-9		
IDC	See Page 7-9		

SHAPES AND DIMENSIONS



Unit: mm

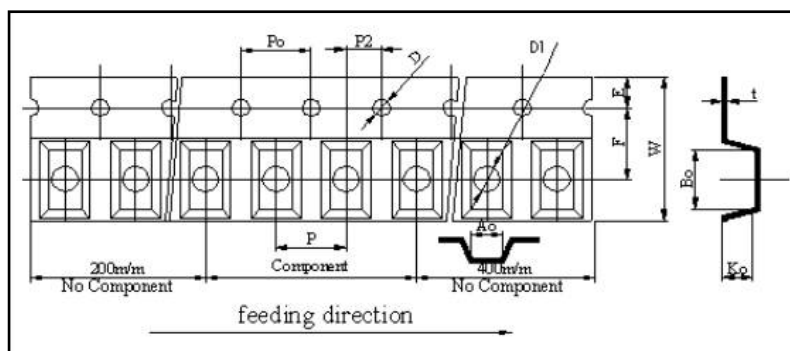
TYPE	160808 (EIA0603)	201209 (EIA0805)	201212 (EIA0805)	321611 (EIA 1206)
L	1.6±0.15	2.0±0.20	2.0±0.20	3.2±0.20
W	0.8±0.15	1.25±0.2	1.25±0.2	1.6±0.20
T	0.8±0.15	0.9±0.20	1.25±0.2	1.1±0.20
E	0.3±0.20	0.5±0.30	0.5±0.30	0.5±0.30

PART NUMBER CODE

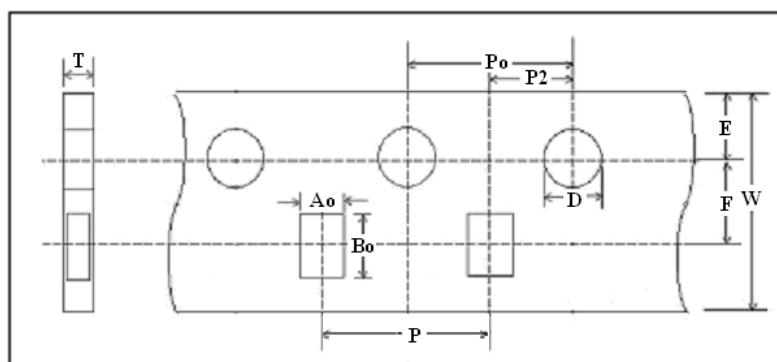
MFI **3216** **4R7** **K** **A**
1 **2** **3** **4** **5**

- 1 Series Name
- 2 Size Code: the first two digitals : length(mm), the last two digitals : width(mm)
- 3 Inductance (R=Decimal Point) Unit : μH
- 4 Tolerance : J= $\pm 5\%$, K= $\pm 10\%$, M = $\pm 20\%$
- 5 Soldering : Green Parts: A—Lead-Free

TAPE AND REEL SPECIFICATIONS PLASTIC CARRIER



PAPER CARRIER



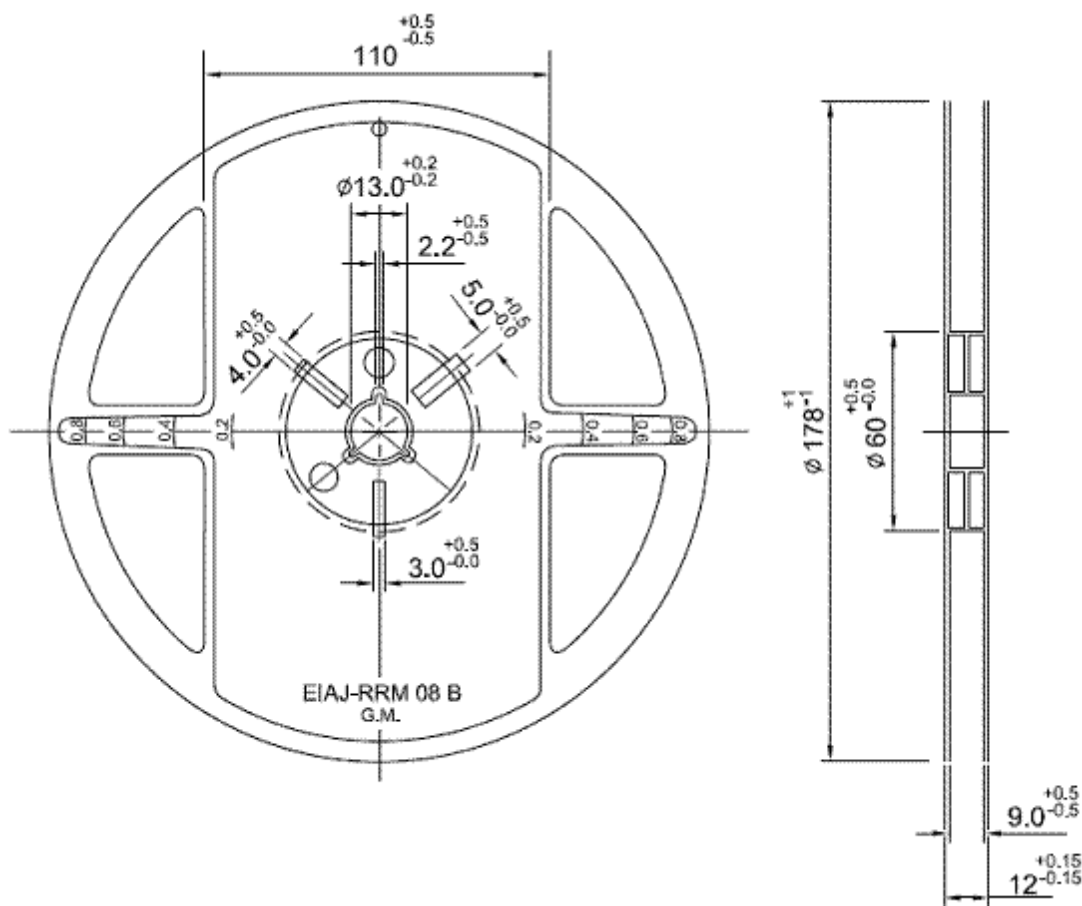
Taping Dimensions

Unit: mm

Size	3216	201212	201209	1608
Symbol	PLASTIC	PLASTIC	PAPER	PAPER
W	7.90~8.30	7.90~8.30	8.00±0.10	8.00±0.10
P	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
E	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
F	3.50±0.05	3.50±0.05	3.50±0.10	3.50±0.10
D	1.55±0.05	1.50±0.05	1.56±0.10	1.56±0.10
D1	0.95~1.20	0.95~1.20	NA	NA
Po	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
Po10	40.0±0.20	40.0±0.20	40.0±0.20	NA
P2	2.00±0.05	2.00±0.05	2.00±0.1	2.00±0.10
Ao	1.85±0.10	1.42±0.10	1.50±0.05	1.05±0.05
Bo	3.43±0.10	2.26±0.10	2.30±0.05	1.85±0.05
Ko(T)	1.22±0.10	1.30±0.10	0.95±0.05	0.95±0.05
t	0.25±0.10	0.23±0.10	NA	NA

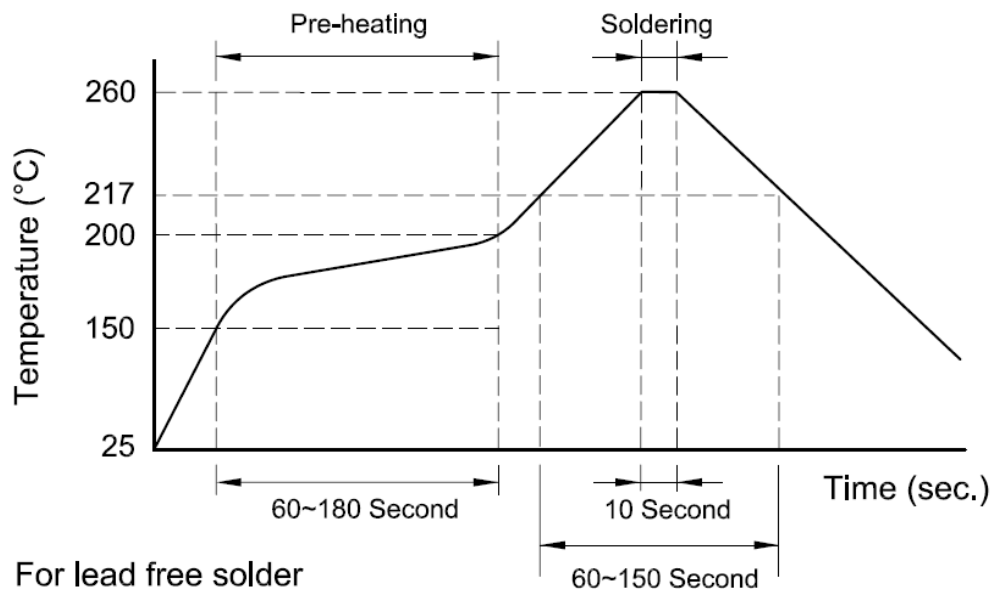
REEL DIMENSIONS

Unit: mm

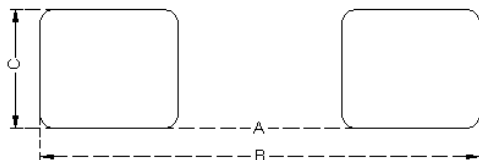


Reel Packaging Quantity					
PART SIZE (EIA SIZE)		1608 (0603)	201209 (0805)	201212 (0805)	321611 (1206)
7" REEL	Qty. (pcs)	4,000	4,000	3,000	3,000

RECOMMENDED SOLDERING CONDITIONS



LAND PATTERNS FOR REFLOW SOLDERING



SOLDER LAND INFORMATION

Unit: mm (inches)

Size	A	B	C
1608	0.5 ~ 0.7 (0.019 ~ 0.027)	2.1 ~ 3.1 (0.083 ~ 0.122)	0.65 ~ 0.95 (0.026 ~ 0.037)
2012	1.0 ~ 1.2 (0.039 ~ 0.047)	3.0 ~ 4.0 (0.118 ~ 0.157)	0.8 ~ 1.1 (0.031 ~ 0.043)
3216	2.0 ~ 2.4 (0.079 ~ 0.094)	4.2 ~ 5.2 (0.165 ~ 0.204)	1.0 ~ 1.4 (0.039 ~ 0.055)



RELIABILITY AND TEST CONDITION

Stress	Performance	Test Condition
Resistance to Solder Heat	The chip should not crack; More than 90% of the terminal electrode should be covered with solder, free from defects, chip body should not expose.	1. Solder: SHEN MAU (Sn60A-B20) 2.Solder Temp: 265 ±5°C 3.Flux: Rosin 4.Dip time: 10 ±1 sec
Solder ability 1 (IR Re-flow test)	1.Sn cover area need to over half thickness of chip 2.Chip shift distance under 50% of width 3.No short, open,...etc defect symptom	For Lead Process 1.Solder: Alpha (63Sn/37Pb) 2.General:135/135/195/235°C For Lead-free Process 1.Solder: Alpha (SAC305) 2.100%TIN:155/155/220/250°C 3.Sn:Ag:Cu=96.5:3:0.5
Solder ability 2 (After steam 8 hrs)	More than 90% of the terminal electrode should be covered with new solder	1.Steam 8 hrs 2.Solder: SHEN MAU (Sn60A-B20) 3.Solder Temp.:235 ±5°C 4.Flux: Rosin 5.Dip time:5 ±1 sec
Terminal Strength	The terminal electrode should not peel off	100505>0.2kgt, 160808>0.3kgt, 201209>0.6kgt, 201212>0.6kgt, 321611>1.0kgt, 322513>1.0kgt, 451616>1.0kgt, 453215>1.5kgt, ; pulling time:30 ±5 sec
Bending Strength	The body should not be damaged by force applied on the right	100505>0.2kgf, 160808>0.3kgf, 201209>1.0kgf, 201212>1.0kgf, 321611>2.0kgf, 322513>2.5kgf, 451616>2.5kgf, 453215>2.5kgf,
Flexure Strength	No mechanical damage shall be noticed even when the board is bent 2 mm (0.079 inches)	1. At ambient temperature & Humidity 2.To bend 2 mm
Thermal Shock (Temperature Cycle)	1. No mechanical damage 2. Inductance should be within ±10% of the initial value 3.Q value should be within ±30% of the initial value 4.Impedance value should be within ±20% of the initial value	1. Temperature:-40 ~ 85°C For 30 minutes each 2. Cycle: 100 cycles 3. Measurement: At ambient temperature 24 hours after test completion



Stress	Performance	Test Condition
Operational Life	1.No mechanical damage 2.Inductance should be within $\pm 10\%$ of the initial value 3.Q value should be within $\pm 30\%$ of the initial value 4.Impedance value should be within $\pm 20\%$ of the initial value	1. Temperature: $125 \pm 5^{\circ}\text{C}$ 2. Testing time: 1000 hrs 3. Applied current: Full rated current 4. Measurement: At ambient temperature 24 hours after test completion
Biased Humidity	1.No mechanical damage 2.Inductance should be within $\pm 10\%$ of the initial value 3.Q value should be within $\pm 30\%$ of the initial value 4.Impedance value should be within $\pm 20\%$ of the initial value	1.Temperature: 40°C 2.Humidity: 90-95 % RH 3. Applied current: Full rated current 4. Testing time: 1000 hrs 5. Measurement: At ambient temperature 24 hours after test completion
Rated Current	1. MCB / MFI / MCI product Surface temperature below room temperature plus 10°C 2. MHC product surface temp. below room temperature plus 40°C	1. At ambient temperature & humidity 2. Testing time: 5 minutes (under full rated current)

GENERAL TECHNICAL DATA

Operating temperature range : $- 55^{\circ}\text{C} \sim +125^{\circ}\text{C}$

Storage temperature (on board): $- 40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

Storage Condition : Less than 40°C and 70% RH

Storage Time: 12 months Max.

Soldering method: Reflow or Wave Solderin



PRODUCT DETAILS

Part No.	Thickness (mm)	Inductance & Tolerance (μ H)	Q (min)	Test Freq. (MHz)	S.R.F (MHz) min	DCR(Ω) (max)	Rated Current (mA)
MFI1608 Series							
MFI1608 R047MA	0.8 ± 0.15	$0.047 \pm 20\%$	10	50	260	0.25	50
MFI1608 R056MA	0.8 ± 0.15	$0.056 \pm 20\%$	10	50	255	0.25	50
MFI1608 R068MA	0.8 ± 0.15	$0.068 \pm 20\%$	10	50	250	0.25	50
MFI1608 R082MA	0.8 ± 0.15	$0.082 \pm 20\%$	10	50	245	0.25	50
MFI1608 R10KA	0.8 ± 0.15	$0.10 \pm 10\%$	15	25	240	0.50	50
MFI1608 R12KA	0.8 ± 0.15	$0.12 \pm 10\%$	15	25	235	0.50	50
MFI1608 R15KA	0.8 ± 0.15	$0.15 \pm 10\%$	15	25	205	0.60	50
MFI1608 R18KA	0.8 ± 0.15	$0.18 \pm 10\%$	15	25	190	0.60	50
MFI1608 R22KA	0.8 ± 0.15	$0.22 \pm 10\%$	15	25	170	0.80	50
MFI1608 R27KA	0.8 ± 0.15	$0.27 \pm 10\%$	15	25	155	0.80	50
MFI1608 R33KA	0.8 ± 0.15	$0.33 \pm 10\%$	15	25	140	0.80	35
MFI1608 R39KA	0.8 ± 0.15	$0.39 \pm 10\%$	15	25	125	1.00	35
MFI1608 R47KA	0.8 ± 0.15	$0.47 \pm 10\%$	15	25	120	1.00	35
MFI1608 R56KA	0.8 ± 0.15	$0.56 \pm 10\%$	15	25	110	1.55	35
MFI1608 R68KA	0.8 ± 0.15	$0.68 \pm 10\%$	15	25	100	1.70	35
MFI1608 R82KA	0.8 ± 0.15	$0.82 \pm 10\%$	15	25	95	2.10	35
MFI1608 1R0KA	0.8 ± 0.15	$1.0 \pm 10\%$	35	10	85	0.60	25
MFI1608 1R2KA	0.8 ± 0.15	$1.2 \pm 10\%$	35	10	70	0.80	25
MFI1608 1R5KA	0.8 ± 0.15	$1.5 \pm 10\%$	35	10	65	0.80	25
MFI1608 1R8KA	0.8 ± 0.15	$1.8 \pm 10\%$	35	10	60	0.80	25
MFI1608 2R2KA	0.8 ± 0.15	$2.2 \pm 10\%$	35	10	55	1.00	15
MFI1608 2R7KA	0.8 ± 0.15	$2.7 \pm 10\%$	35	10	50	1.20	15
MFI1608 3R3KA	0.8 ± 0.15	$3.3 \pm 10\%$	35	10	45	1.40	15
MFI1608 3R9KA	0.8 ± 0.15	$3.9 \pm 10\%$	40	10	42	1.60	15
MFI1608 4R7KA	0.8 ± 0.15	$4.7 \pm 10\%$	40	10	40	1.80	15
MFI1608 5R6KA	0.8 ± 0.15	$5.6 \pm 10\%$	40	4	35	1.80	5
MFI1608 6R8KA	0.8 ± 0.15	$6.8 \pm 10\%$	40	4	20	1.90	5
MFI1608 8R2KA	0.8 ± 0.15	$8.2 \pm 10\%$	40	4	18	2.10	5
MFI1608 10RKA	0.8 ± 0.15	$10.0 \pm 10\%$	30	2	17	1.85	3
MFI1608 12RKA	0.8 ± 0.15	$12.0 \pm 10\%$	30	2	15	2.10	3



Part No.	Thickness (mm)	Inductance & Tolerance (μ H)	Q (min)	Test Freq. (MHz)	S.R.F (MHz) Min	DCR(Ω) (Max.)	Rated Current (mA)
MFI2012 Series							
MFI2012 R047MA	0.9 ± 0.2	$0.047 \pm 20\%$	20	50	320	0.20	300
MFI2012 R056MA	0.9 ± 0.2	$0.056 \pm 20\%$	20	50	300	0.20	300
MFI2012 R068MA	0.9 ± 0.2	$0.068 \pm 20\%$	20	50	280	0.20	300
MFI2012 R082MA	0.9 ± 0.2	$0.082 \pm 20\%$	20	50	275	0.20	300
MFI2012 R10KA	0.9 ± 0.2	$0.10 \pm 10\%$	20	25	255	0.30	250
MFI2012 R12KA	0.9 ± 0.2	$0.12 \pm 10\%$	20	25	250	0.30	250
MFI2012 R15KA	0.9 ± 0.2	$0.15 \pm 10\%$	20	25	230	0.40	250
MFI2012 R18KA	0.9 ± 0.2	$0.18 \pm 10\%$	20	25	210	0.40	250
MFI2012 R22KA	0.9 ± 0.2	$0.22 \pm 10\%$	20	25	195	0.50	250
MFI2012 R27KA	0.9 ± 0.2	$0.27 \pm 10\%$	20	25	170	0.50	250
MFI2012 R33KA	0.9 ± 0.2	$0.33 \pm 10\%$	20	25	165	0.50	250
MFI2012 R39KA	0.9 ± 0.2	$0.39 \pm 10\%$	25	25	155	0.60	200
MFI2012 R47KA	0.9 ± 0.2	$0.47 \pm 10\%$	30	25	140	0.60	200
MFI2012 R56KA	0.9 ± 0.2	$0.56 \pm 10\%$	25	25	130	0.70	150
MFI2012 R68KA	0.9 ± 0.2	$0.68 \pm 10\%$	30	25	120	0.80	150
MFI2012 R82KA	0.9 ± 0.2	$0.82 \pm 10\%$	30	25	115	1.00	150
MFI2012 1R0KA	0.9 ± 0.2	$1.0 \pm 10\%$	45	10	85	0.40	50
MFI2012 1R2KA	0.9 ± 0.2	$1.2 \pm 10\%$	45	10	75	0.50	50
MFI2012 1R5KA	0.9 ± 0.2	$1.5 \pm 10\%$	45	10	65	0.50	50
MFI2012 1R8KA	0.9 ± 0.2	$1.8 \pm 10\%$	45	10	60	0.60	50
MFI2012 2R2KA	0.9 ± 0.2	$2.2 \pm 10\%$	45	10	55	0.60	30
MFI2012 2R7KA	1.25 ± 0.2	$2.7 \pm 10\%$	45	10	50	0.70	30
MFI2012 3R3KA	1.25 ± 0.2	$3.3 \pm 10\%$	45	10	45	0.80	30
MFI2012 3R9KA	1.25 ± 0.2	$3.9 \pm 10\%$	45	10	44	0.90	30
MFI2012 4R7KA	1.25 ± 0.2	$4.7 \pm 10\%$	45	10	41	1.00	30
MFI2012 5R6KA	1.25 ± 0.2	$5.6 \pm 10\%$	50	4	37	0.90	15
MFI2012 6R8KA	1.25 ± 0.2	$6.8 \pm 10\%$	50	4	34	1.00	15
MFI2012 8R2KA	1.25 ± 0.2	$8.2 \pm 10\%$	50	4	30	1.10	15
MFI2012 15RKA	1.25 ± 0.2	$15.0 \pm 10\%$	35	1	22	0.80	5
MFI2012 18RKA	1.25 ± 0.2	$18.0 \pm 10\%$	35	1	21	0.90	5
MFI2012 22RKA	1.25 ± 0.2	$22.0 \pm 10\%$	35	1	19	1.10	5



Part No.	Thickness (mm)	Inductance & Tolerance (μ H)	Q (min)	Test Freq. (MHz)	S.R.F (MHz) min	DCR(Ω) (max)	Rated Current (mA)
MFI3216 Series							
MFI3216 R047MA	1.1 $\pm$ 0.2	0.047 $\pm$ 20%	20	50	320	0.15	300
MFI3216 R056MA	1.1 $\pm$ 0.2	0.056 $\pm$ 20%	20	50	310	0.25	300
MFI3216 R068MA	1.1 $\pm$ 0.2	0.068 $\pm$ 20%	20	50	280	0.25	300
MFI3216 R082MA	1.1 $\pm$ 0.2	0.082 $\pm$ 20%	20	50	275	0.25	0.25
MFI3216 R10KA	1.1 $\pm$ 0.2	0.10 $\pm$ 10%	20	25	270	0.25	250
MFI3216 R12KA	1.1 $\pm$ 0.2	0.12 $\pm$ 10%	20	25	250	0.30	250
MFI3216 R15KA	1.1 $\pm$ 0.2	0.15 $\pm$ 10%	20	25	200	0.30	250
MFI3216 R18KA	1.1 $\pm$ 0.2	0.18 $\pm$ 10%	20	25	185	0.40	250
MFI3216 R22KA	1.1 $\pm$ 0.2	0.22 $\pm$ 10%	20	25	170	0.40	250
MFI3216 R27KA	1.1 $\pm$ 0.2	0.27 $\pm$ 10%	20	25	150	0.50	250
MFI3216 R33KA	1.1 $\pm$ 0.2	0.33 $\pm$ 10%	20	25	145	0.50	250
MFI3216 R39KA	1.1 $\pm$ 0.2	0.39 $\pm$ 10%	25	25	135	0.50	200
MFI3216 R47KA	1.1 $\pm$ 0.2	0.47 $\pm$ 10%	25	25	125	0.60	200
MFI3216 R56KA	1.1 $\pm$ 0.2	0.56 $\pm$ 10%	25	25	115	0.70	150
MFI3216 R68KA	1.1 $\pm$ 0.2	0.68 $\pm$ 10%	25	25	105	0.80	150
MFI3216 R82KA	1.1 $\pm$ 0.2	0.82 $\pm$ 10%	25	25	100	0.90	150
MFI3216 1R0KA	1.1 $\pm$ 0.2	1.0 $\pm$ 10%	45	10	87	0.40	100
MFI3216 1R2KA	1.1 $\pm$ 0.2	1.2 $\pm$ 10%	45	10	75	0.50	100
MFI3216 1R5KA	1.1 $\pm$ 0.2	1.5 $\pm$ 10%	45	10	69	0.50	50
MFI3216 1R8KA	1.1 $\pm$ 0.2	1.8 $\pm$ 10%	45	10	64	0.50	50
MFI3216 2R2KA	1.1 $\pm$ 0.2	2.2 $\pm$ 10%	45	10	58	0.60	50
MFI3216 2R7KA	1.1 $\pm$ 0.2	2.7 $\pm$ 10%	45	10	52	0.60	50
MFI3216 3R3KA	1.1 $\pm$ 0.2	3.3 $\pm$ 10%	45	10	48	0.70	50
MFI3216 3R9KA	1.1 $\pm$ 0.2	3.9 $\pm$ 10%	45	10	44	0.80	50
MFI3216 4R7KA	1.1 $\pm$ 0.2	4.7 $\pm$ 10%	45	10	41	0.90	50
MFI3216 5R6KA	1.1 $\pm$ 0.2	5.6 $\pm$ 10%	50	4	32	0.80	25
MFI3216 6R8KA	1.1 $\pm$ 0.2	6.8 $\pm$ 10%	50	4	29	0.90	25
MFI3216 8R2KA	1.1 $\pm$ 0.2	8.2 $\pm$ 10%	50	4	26	1.00	25
MFI3216 10RKA	1.1 $\pm$ 0.2	10.0 $\pm$ 10%	50	2	26	0.60	25
MFI3216 12RKA	1.1 $\pm$ 0.2	12.0 $\pm$ 10%	50	2	26	0.60	15
MFI3216 15RKA	1.1 $\pm$ 0.2	15.0 $\pm$ 10%	50	1	22	0.70	5
MFI3216 18RKA	1.1 $\pm$ 0.2	18.0 $\pm$ 10%	50	1	21	0.70	5
MFI3216 22RKA	1.1 $\pm$ 0.2	22.0 $\pm$ 10%	50	1	19	0.90	5