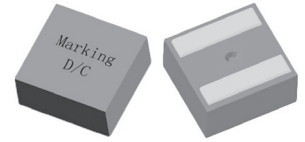


## FEATURES

- METAL COMPOSITE SHIELDED POWER INDUCTOR
- SOFT SATURATION.
- ULTRA HIGH CURRENT
- EXTREMELY LOW DCR FOR HIGH EFFICIENCY.
- VERY LOW ACOUSTIC NOISE AND LEAKAGE FLUX NOISE

**RoHS Compliant**  
 includes all homogeneous materials  
 \*See Part Number System for Details



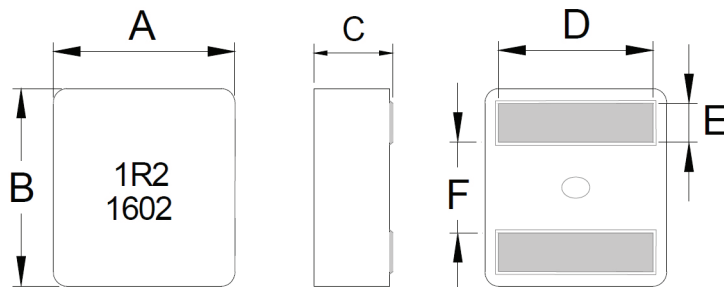
## CHARACTERISTICS

Series	NPIM42Z	NPIM52Z	NPIM53Z	NPIM63Z	NPIM65Z
Inductance Range	0.10 ~ 4.7μH	0.15 ~ 1.5μH	0.15 ~ 4.7μH	0.18 ~ 4.5μH	1.0 ~ 4.7μH
Maximum Component Temperature (Ambient + Self-Heating)	-40°C ~ +125°C (General Product)				
	-55°C ~ +155°C (Automotive "QYF" Product)				
Maximum Temperature Rise at Irms	+40°C				
Inductance Change at Isat	-30%				
Inductance Tolerance	±20%				
Resistance to Solder Heat	260°C ±5°C for 10 seconds				

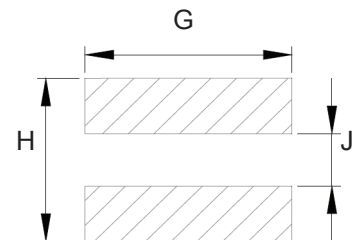
## DIMENSIONS (mm)

Series	A	B	C	D	E	F	G	H	J
NPIM42Z	4.1 ± 0.2	4.1 ± 0.2	1.9 ± 0.2	3.4 ± 0.3	0.88 ± 0.2	1.6 ± 0.25	3.8 ref	3.4 ref	1.4 ref
NPIM52Z	5.5 ± 0.2	5.3 ± 0.2	1.9 ± 0.2	4.3 ± 0.3	1.1 ± 0.2	2.3 ± 0.25	4.7 ref	4.5 ref	2.0 ref
NPIM53Z	5.5 ± 0.2	5.3 ± 0.2	2.9 ± 0.2	4.3 ± 0.3	1.1 ± 0.2	2.3 ± 0.25	4.7 ref	4.5 ref	2.0 ref
NPIM63Z	6.6 ± 0.2	6.4 ± 0.2	2.8 ± 0.2	See Spec table	1.4 ± 0.2	2.6 ± 0.25	5.6 ref	5.6 ref	2.5 ref
			2.9 ± 0.2						
NPIM65Z	6.6 ± 0.2	6.4 ± 0.2	4.8 ± 0.2		1.4 ± 0.2	2.6 ± 0.25	5.6 ref	5.6 ref	2.5 ref

## CONSTRUCTION



## LAND PATTERN



Note:

1. Recommend solder paste thickness at 0.12mm and above. (NPIM42Z/NPIM52Z/NPIM53Z)
2. Recommend solder paste thickness at 0.15mm and above. (NPIM63Z / NPIM65Z)

## PART NUMBER SYSTEM

NPIM42ZD4R7 M TR QY F  
 RoHS Compliant

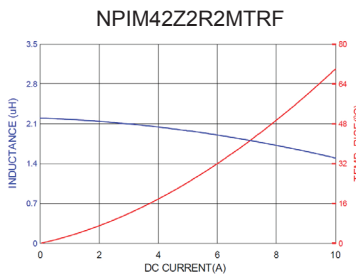
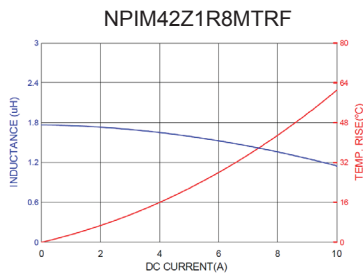
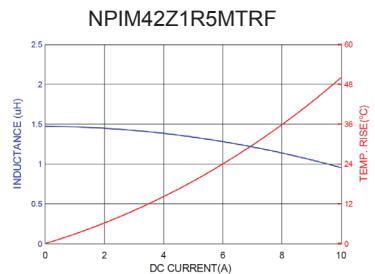
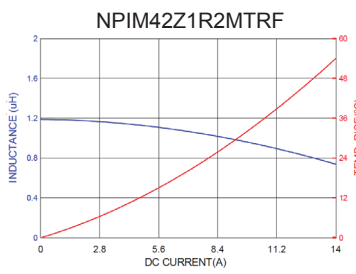
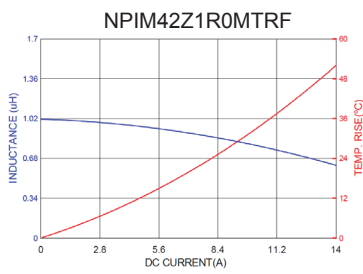
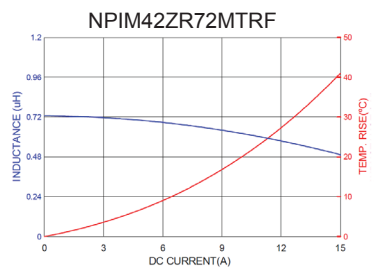
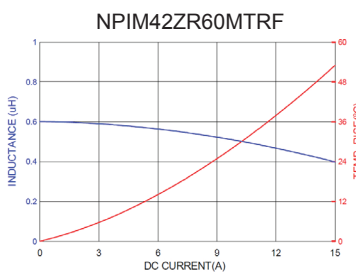
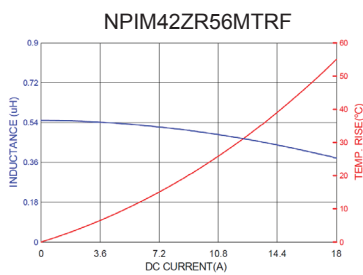
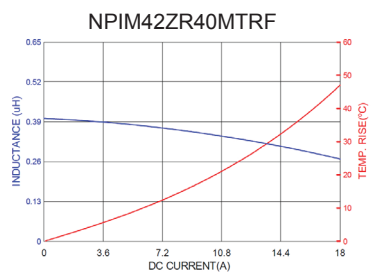
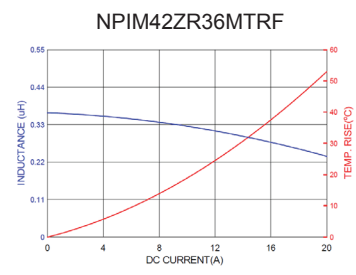
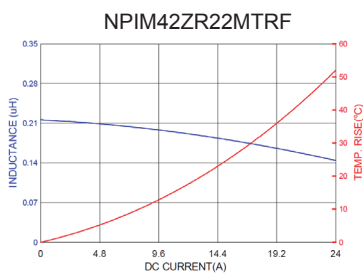
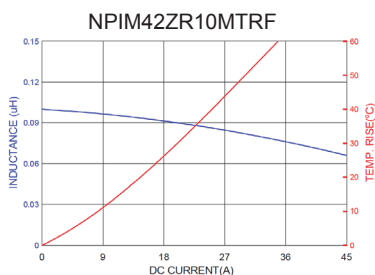
Series  
 Size Code (see table for details)  
 Construction & Performance Codes (see specs for details)  
 Inductance Code (μH): 1st two digits are significant, 3rd digit is multiplier for values from 10μH and up.  
 Inductance Tolerance Code: M=±20%  
 Packaging: TR = Tape & Reel

"QY" denotes suitable for automotive equipment, sourced to special production and inspection at TS-16949 certified production site



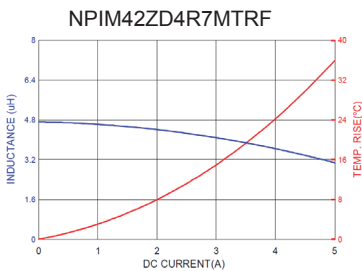
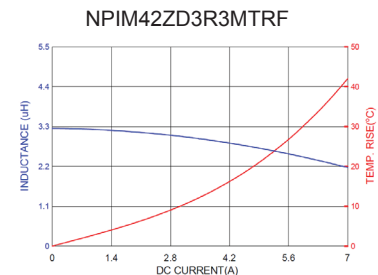
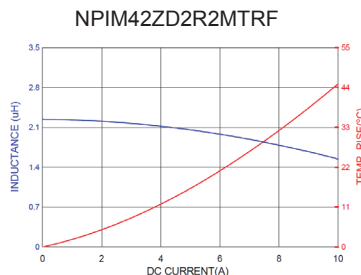
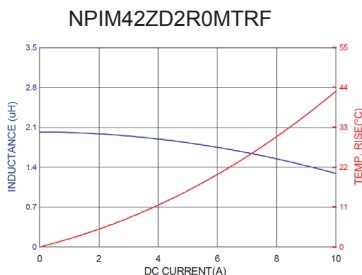
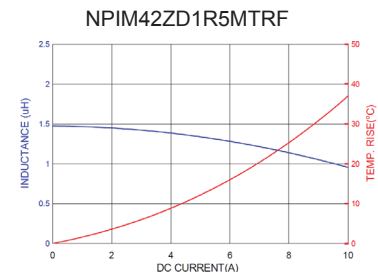
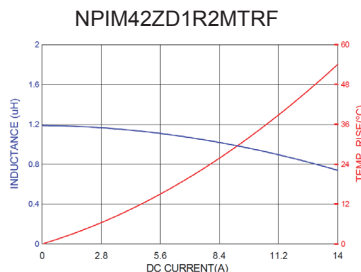
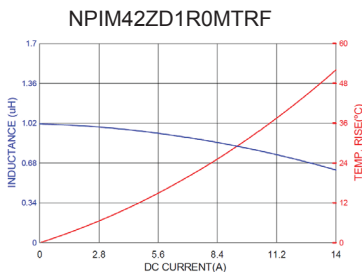
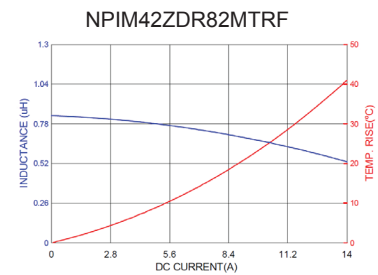
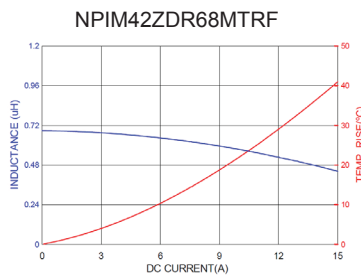
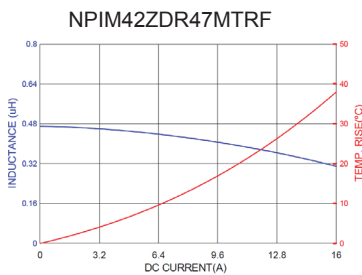
Part Number	STANDARD VALUES - CASE SIZE 42Z ( 4.1 X 4.1 X 1.9mm)						
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Typ.	Isat (A) Max.	AECQ200 Qualified Part Number
NPIM42ZR10MTRF	0.1	2.42	13.5	18	38	33	NPIM42ZR10MTRQYF
NPIM42ZR22MTRF	0.22	4.6	13	16.8	19.5	18.8	NPIM42ZR22MTRQYF
NPIM42ZR36MTRF	0.36	6.3	11	14.5	17	15	NPIM42ZR36MTRQYF
NPIM42ZR40MTRF	0.4	7.73	10	14	15.5	13.5	NPIM42ZR40MTRQYF
NPIM42ZR56MTRF	0.56	9.3	8.5	12	14	12.6	NPIM42ZR56MTRQYF
NPIM42ZR60MTRF	0.6	9.52	8	11.7	13.7	12.3	NPIM42ZR60MTRQYF
NPIM42ZR72MTRF	0.72	11.6	7.6	10.5	12	10.6	NPIM42ZR72MTRQYF
NPIM42Z1R0MTRF	1.0	14.6	6.8	9.6	9.6	8.8	NPIM42Z1R0MTRQYF
NPIM42Z1R2MTRF	1.2	17.9	6.6	9	9	7.8	NPIM42Z1R2MTRQYF
NPIM42Z1R5MTRF	1.5	23.5	5.8	7.6	8	7.4	NPIM42Z1R5MTRQYF
NPIM42Z1R8MTRF	1.8	28.0	5.2	7	7.5	7	NPIM42Z1R8MTRQYF
NPIM42Z2R2MTRF	2.2	38.7	4.6	5.6	6.5	6	NPIM42Z2R2MTRQYF

Typical -30% inductance change at Isat  
 Test frequency : 100KHz /0.1V



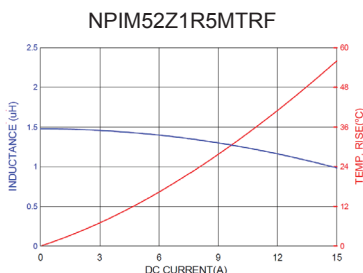
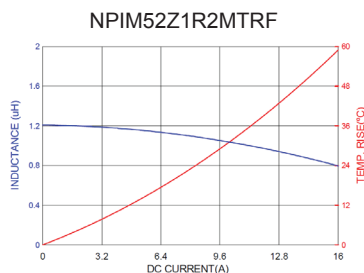
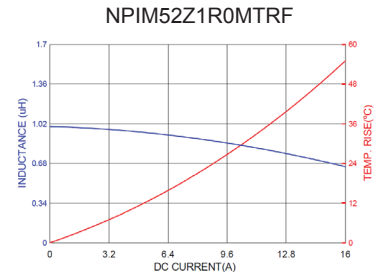
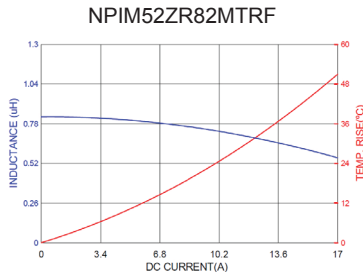
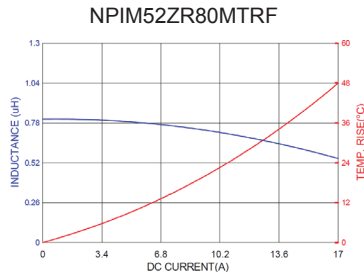
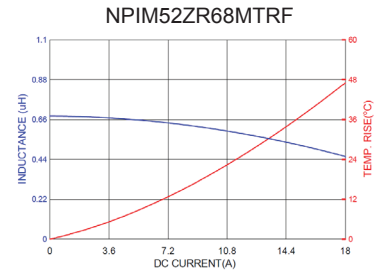
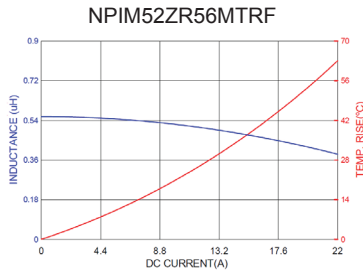
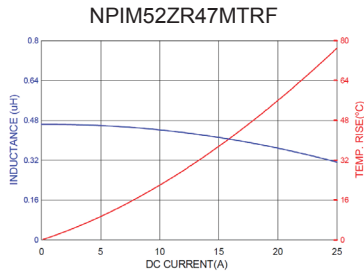
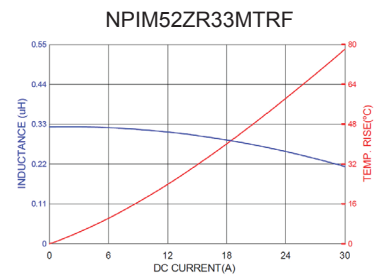
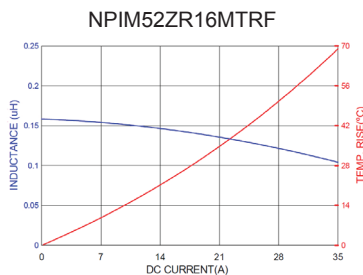
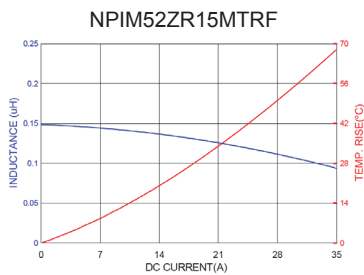
Part Number	LOW DCR "ZD" VALUES - CASE SIZE 42Z ( 4.1 X 4.1 X 1.9mm)						AECQ200 Qualified Part Number
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Typ.	Isat (A) Max.	
NPIM42ZDR47MTRF	0.47	6.8	9.8	13.2	14	12.5	NPIM42ZDR47MTRQYF
NPIM42ZDR68MTRF	0.68	8.2	9.2	12	11.6	10	NPIM42ZDR68MTRQYF
NPIM42ZDR82MTRF	0.82	9.5	8.5	11.5	10.2	9	NPIM42ZDR82MTRQYF
NPIM42ZD1R0MTRF	1.0	11.7	8	11	9.2	8	NPIM42ZD1R0MTRQYF
NPIM42ZD1R2MTRF	1.2	13.4	7.2	9.5	8.6	7.5	NPIM42ZD1R2MTRQYF
NPIM42ZD1R5MTRF	1.5	15.8	6.7	9.1	7.5	6.7	NPIM42ZD1R5MTRQYF
NPIM42ZD2R0MTRF	2.0	23.3	6.2	8.2	6.2	5	NPIM42ZD2R0MTRQYF
NPIM42ZD2R2MTRF	2.2	23.5	6	8	6	4.8	NPIM42ZD2R2MTRQYF
NPIM42ZD3R3MTRF	3.3	38.3	4.4	5.5	5.3	4.4	NPIM42ZD3R3MTRQYF
NPIM42ZD4R7MTRF	4.7	57.2	3.8	5.1	4	3.5	NPIM42ZD4R7MTRQYF

Typical -30% inductance change at Isat  
 Test frequency : 100KHz /0.1V



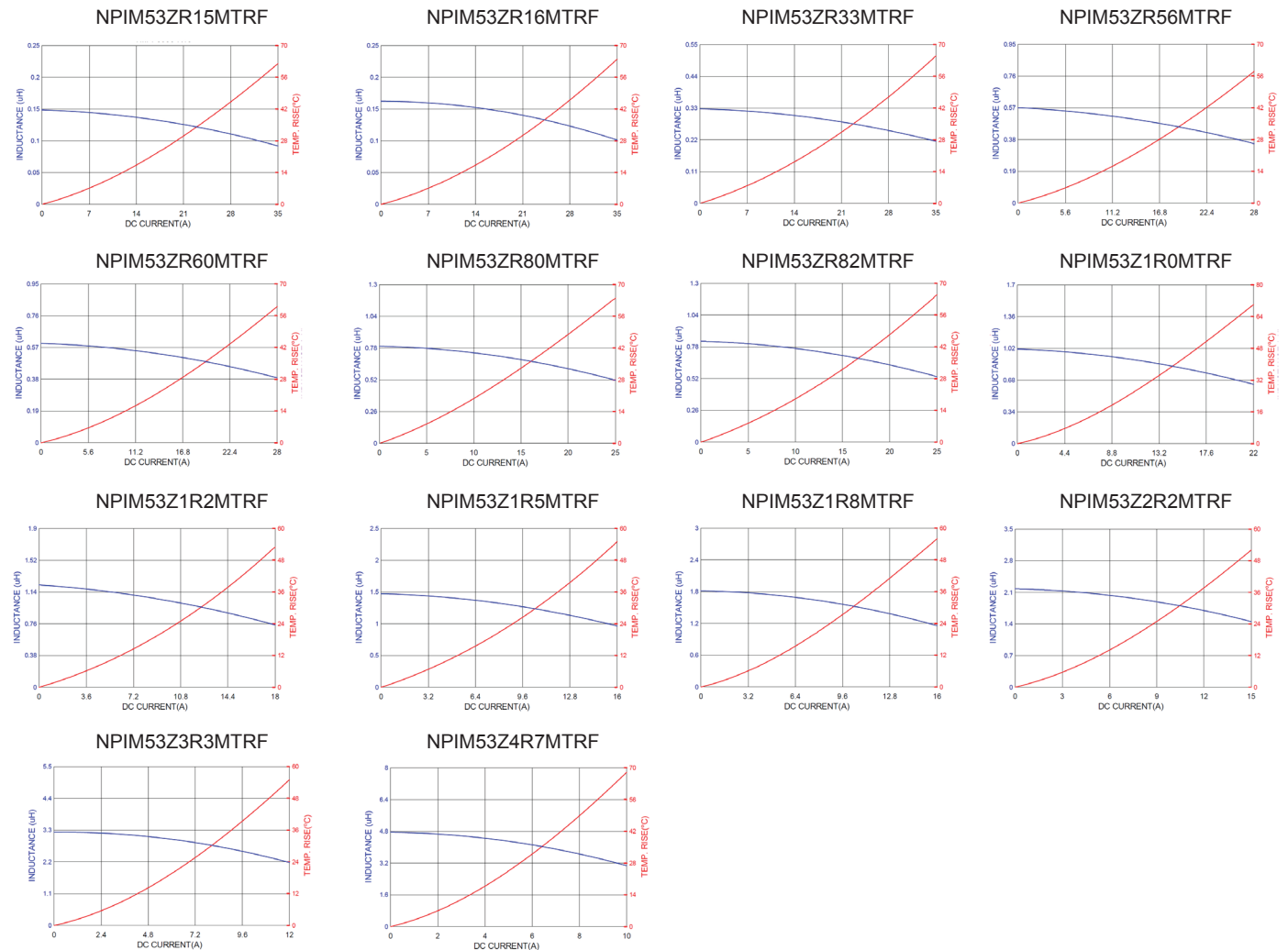
Part Number	STANDARD VALUES - CASE SIZE 52Z ( 5.5 X 5.3 X 1.9mm)						AECQ200 Qualified Part Number
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Typ.	Isat (A) Max.	
NPIM52ZR15MTRF	0.15	4.6	13.9	18.8	30	27	NPIM52ZR15MTRQYF
NPIM52ZR16MTRF	0.16	4.6	13.9	18.8	30	27	NPIM52ZR16MTRQYF
NPIM52ZR33MTRF	0.33	7.0	10.5	14.4	26	24	NPIM52ZR33MTRQYF
NPIM52ZR47MTRF	0.47	8.05	10.1	14.1	22	20	NPIM52ZR47MTRQYF
NPIM52ZR56MTRF	0.56	9.54	9.9	13.9	19	16	NPIM52ZR56MTRQYF
NPIM52ZR68MTRF	0.68	10.2	9.6	13.4	16	14	NPIM52ZR68MTRQYF
NPIM52ZR80MTRF	0.8	11.8	9.4	13	15.5	13.5	NPIM52ZR80MTRQYF
NPIM52ZR82MTRF	0.82	12.7	8.5	12	15	13	NPIM52ZR82MTRQYF
NPIM52Z1R0MTRF	1.0	13.8	7.5	10.5	14.5	12.8	NPIM52Z1R0MTRQYF
NPIM52Z1R2MTRF	1.2	16.3	6.8	9.4	14	12.2	NPIM52Z1R2MTRQYF
NPIM52Z1R5MTRF	1.5	18.7	6.4	8.8	13.3	11.7	NPIM52Z1R5MTRQYF

Typical -30% inductance change at Isat  
 Test frequency : 100KHz /0.1V



Part Number	STANDARD VALUES - CASE SIZE 53Z ( 5.5 X 5.3 X 2.9mm)						AECQ200 Qualified Part Number
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I rms (A)	+40C Rise I rms (A)	Isat (A) Typ.	Isat (A) Max.	
NPIM53ZR15MTRF	0.15	2.31	14.3	22.2	36	32.5	NPIM53ZR15MTRQYF
NPIM53ZR16MTRF	0.16	2.33	14.2	22.2	35	32	NPIM53ZR16MTRQYF
NPIM53ZR33MTRF	0.33	3.52	13.8	19.2	28	26	NPIM53ZR33MTRQYF
NPIM53ZR56MTRF	0.56	4.52	13.6	17.7	22.2	20.2	NPIM53ZR56MTRQYF
NPIM53ZR60MTRF	0.6	4.52	13.6	17.7	22	20	NPIM53ZR60MTRQYF
NPIM53ZR80MTRF	0.8	5.65	10.1	13.1	20	18	NPIM53ZR80MTRQYF
NPIM53ZR82MTRF	0.82	5.78	9.9	12.9	19.7	17.6	NPIM53ZR82MTRQYF
NPIM53Z1R0MTRF	1.0	7.6	9.0	12.2	16.5	14.3	NPIM53Z1R0MTRQYF
NPIM53Z1R2MTRF	1.2	9.7	8.5	11	15	13.5	NPIM53Z1R2MTRQYF
NPIM53Z1R5MTRF	1.5	11.2	8.0	10.5	14	12.5	- -
NPIM53Z1R8MTRF	1.8	12.7	7.6	10.1	12.3	11.3	NPIM53Z1R8MTRQYF
NPIM53Z2R2MTRF	2.2	14.5	7.2	9.7	10	9	NPIM53Z2R2MTRQYF
NPIM53Z3R3MTRF	3.3	23.1	5.9	8.1	9.5	8.7	NPIM53Z3R3MTRQYF
NPIM53Z4R7MTRF	4.7	36.3	4.3	5.9	8.2	7	NPIM53Z4R7MTRQYF

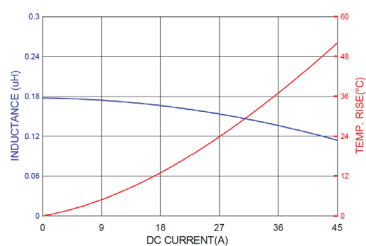
Typical -30% inductance change at Isat  
 Test frequency : 100KHz /0.1V



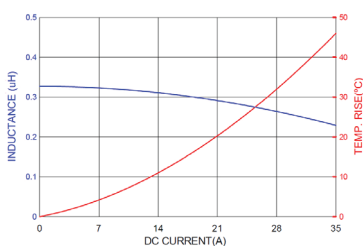
Part Number	STANDARD VALUES - CASE SIZE 63Z ( 6.6 X 6.4mm)								
	Inductance Value (μH)	DCR (mΩ) max.	+20C Rise I rms (A)	+40C Rise I rms (A)	Isat (A) Typ.	Isat (A) Max.	C ± 0.2 (mm)	D ± 0.3 (mm)	AECQ200 Qualified Part Number
NPIM63ZR18MTRF	0.18	1.75	24	32	40	36	2.8	5.30	NPIM63ZR18MTRQYF
NPIM63ZR33MTRF	0.33	2.5	20	25	32	28		5.55	NPIM63ZR33MTRQYF
NPIM63ZR56MTRF	0.56	3.31	17	22	29	25		5.30	NPIM63ZR56MTRQYF
NPIM63Z1R0MTRF	1.0	6.05	13	18	23	18		5.20	NPIM63Z1R0MTRQYF
NPIM63Z1R2MTRF	1.2	7.4	12	16	22	16		5.15	NPIM63Z1R2MTRQYF
NPIM63Z1R8MTRF	1.8	10.2	10	14	18.2	13		5.10	NPIM63Z1R8MTRQYF
NPIM63Z2R2MTRF	2.2	12.2	7	10	15.9	11	2.9	5.05	NPIM63Z2R2MTRQYF
NPIM63Z3R3MTRF	3.3	20.8	6	8	12.2	9		5.00	NPIM63Z3R3MTRQYF
NPIM63Z4R5MTRF	4.5	25.3	5	7	10	8		5.00	NPIM63Z4R5MTRQYF

Typical -30% inductance change at Isat  
 Test frequency : 100KHz /0.1V

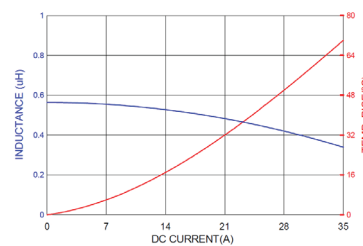
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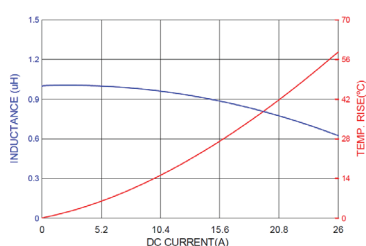
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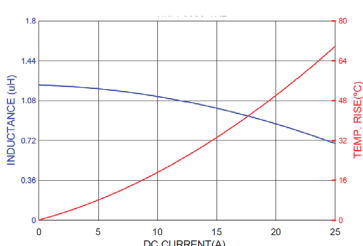
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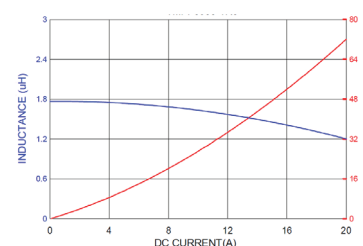
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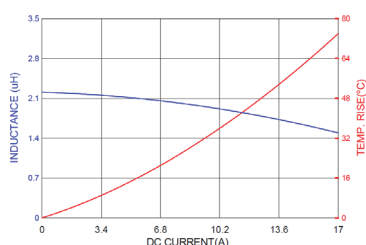
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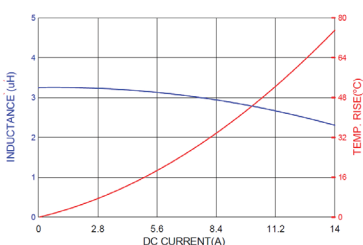
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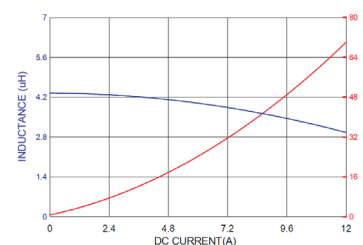
NPIM63Z2R2MTRF



NPIM63Z3R3MTRF



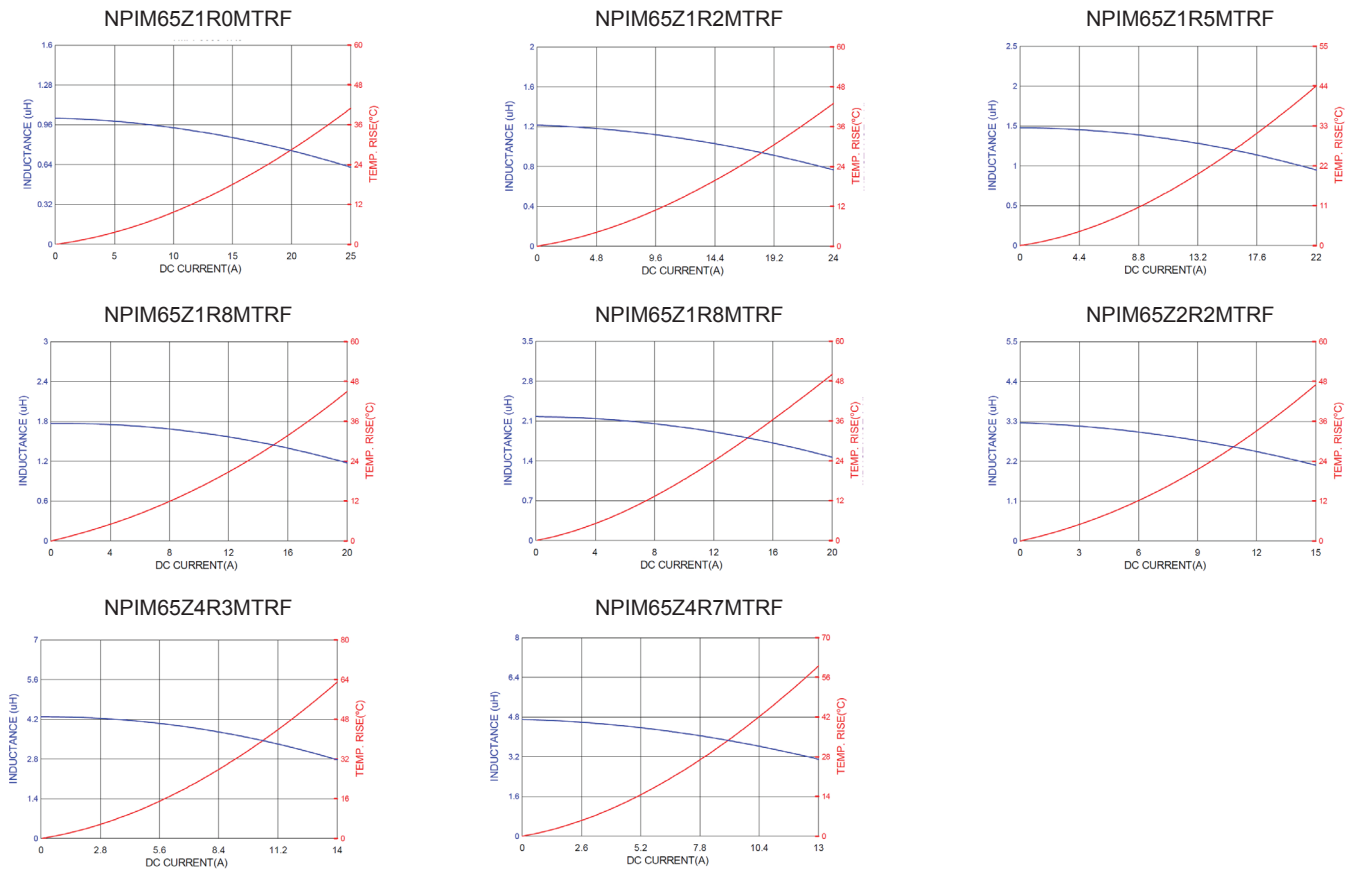
NPIM63Z4R5MTRF



Part Number	STANDARD VALUES - CASE SIZE 65Z ( 6.6 X 6.4 X 4.8mm)							AECQ200 Qualified Part Number
	Inductance Value ( $\mu$ H)	DCR ( $m\Omega$ ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Typ.	Isat (A) Max.	D $\pm$ 0.3 (mm)	
NPIM65Z1R0MTRF	1.0	4.52	15	20	23	18	5.3	NPIM65Z1R0MTRQYF
NPIM65Z1R2MTRF	1.2	5.83	14	18	22	16		NPIM65Z1R2MTRQYF
NPIM65Z1R5MTRF	1.5	6.3	13	17	19.5	14.5		NPIM65Z1R5MTRQYF
NPIM65Z1R8MTRF	1.8	7.1	12	16	18.5	13.5		NPIM65Z1R8MTRQYF
NPIM65Z2R2MTRF	2.2	8.5	10	13	16	12		NPIM65Z2R2MTRQYF
NPIM65Z3R3MTRF	3.3	12.5	8.5	11	12.5	10	5.2	NPIM65Z3R3MTRQYF
NPIM65Z4R3MTRF	4.3	16.2	7	9	11	8.5		NPIM65Z4R3MTRQYF
NPIM65Z4R7MTRF	4.7	18.4	6.5	8.5	10.5	8		NPIM65Z4R7MTRQYF

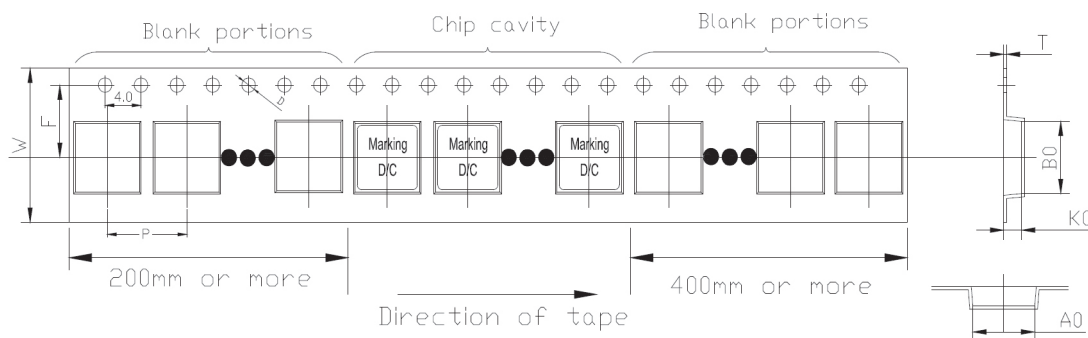
Typical -30% inductance change at Isat

Test frequency : 100KHz /0.1V



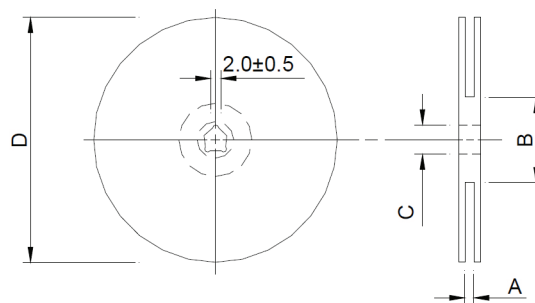
## CARRIER TAPE DIMENSIONS (mm)

Series	Ao	Bo	Ko	P	W	F	T	D
NPIM42Z	4.4 ± 0.1	4.4 ± 0.1	2.3 ± 0.1	8.0 ± 0.1	12 ± 0.3	5.5 ± 0.1	0.35 ± 0.1	1.5 ± 0.1
NPIM52Z	6.0 ± 0.1	5.7 ± 0.1	2.3 ± 0.1	8.0 ± 0.1	12.0 ± 0.3	7.5 ± 0.1	0.35 ± 0.05	1.5 ± 0.1
NPIM53Z	6.0 ± 0.1	5.7 ± 0.1	3.3 ± 0.1	8.0 ± 0.1	16.0 ± 0.3	7.5 ± 0.1	0.35 ± 0.05	1.5 ± 0.1
NPIM63Z	7.0 ± 0.1	6.8 ± 0.1	3.3 ± 0.1	12.0 ± 0.1	16 ± 0.3	7.5 ± 0.1	0.35 ± 0.05	1.5 ± 0.1
NPIM65Z	7.0 ± 0.1	6.8 ± 0.1	5.3 ± 0.1	12.0 ± 0.1	16 ± 0.3	7.5 ± 0.1	0.35 ± 0.1	1.5 ± 0.1



## REEL DIMENSIONS (mm)

Series	A	B	C	D	Qty/Reel
NPIM42Z	12.4 +2/-0	100 ± 2.0	13.0 +0.5/-0.2	330	3,000
NPIM52Z					3,000
NPIM53Z	2,000				
NPIM63Z	1,000				
NPIM65Z	800				



## REFLOW SOLDERING PROFILE

