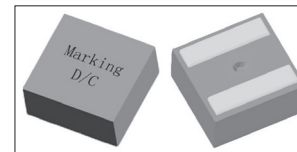


## FEATURES

- SHIELDED POWER INDUCTOR
- MOLDED METAL COMPOSITE CONSTRUCTION
- HIGH SATURATION CURRENT CHARACTERISTICS (~ 69A)

**RoHS Compliant**  
includes all homogeneous materials



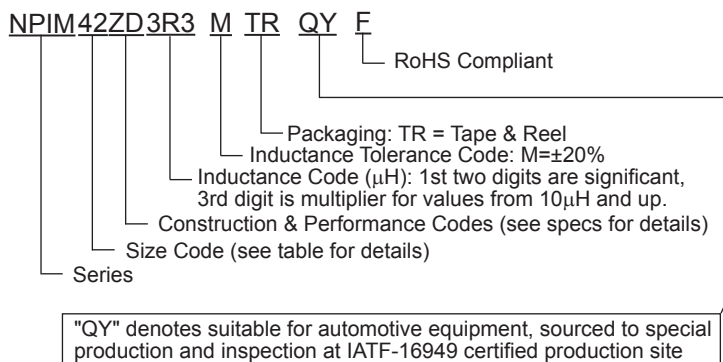
\*See Part Number System for Details

## CHARACTERISTICS

Series	NPIM42Z	NPIM52Z	NPIM53Z	NPIM63Z
Inductance Range	0.10 ~ 3.3 $\mu$ H	0.15 ~ 1.5 $\mu$ H	0.15 ~ 4.7 $\mu$ H	0.18 ~ 4.7 $\mu$ H
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	$\pm$ 20%			
Resistance to Solder Heat	260°C $\pm$ 5°C for 10 seconds			

Series	NPIM65Z	NPIM66Z	NPIM71Z	NPIM73Z
Inductance Range	1.0 ~ 4.7 $\mu$ H	2.2 ~ 8.2 $\mu$ H	10 ~ 22 $\mu$ H	1.0 ~ 8.2 $\mu$ H
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	$\pm$ 20%			
Resistance to Solder Heat	260°C $\pm$ 5°C for 10 seconds			

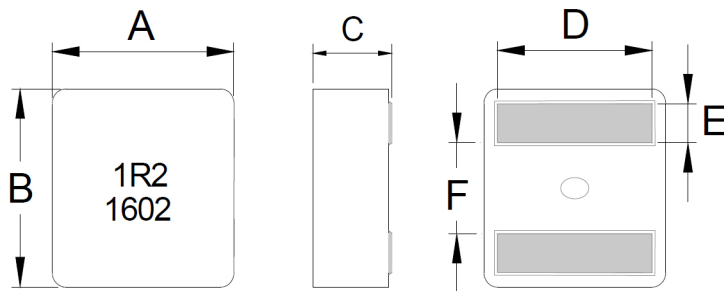
## PART NUMBER SYSTEM



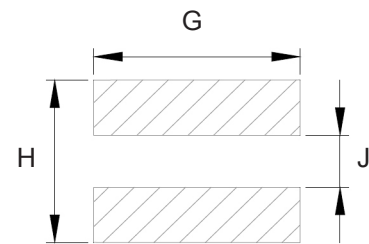
## DIMENSIONS (mm)

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 2.9 ± 0.2	See Spec Table	1.4 ± 0.2	2.6 ± 0.25	5.6 ref	5.6 ref	2.5 ref
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
NPIM66Z	6.6 ± 0.2	6.4 ± 0.2	5.8 ± 0.2	5.3 ± 0.3	1.4 ± 0.2	2.6 ± 0.25	5.6 ref	5.6 ref	2.5 ref
NPIM71Z	7.2 ± 0.2	6.9 ± 0.2	5.8 ± 0.2	5.3 ± 0.3	1.4 ± 0.2	2.6 ± 0.25	5.6 ref	5.6 ref	2.5 ref
NPIM73Z	7.8 ± 0.25	7.6 ± 0.2	2.9 ± 0.2	See Spec Table	1.75 ± 0.2	3.15 ± 0.25	7.2 ref	7.4 ref	2.8 ref

## CONSTRUCTION



## LAND PATTERN

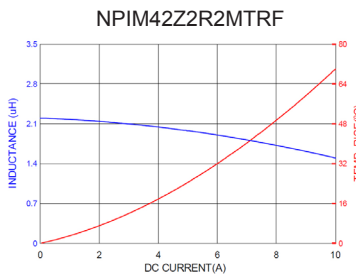
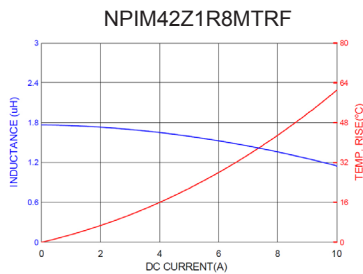
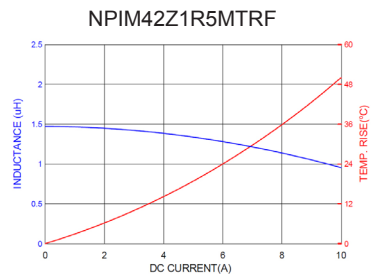
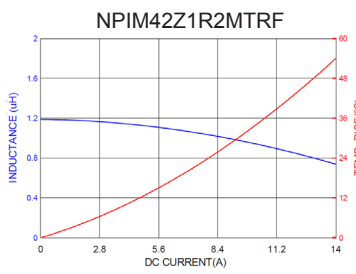
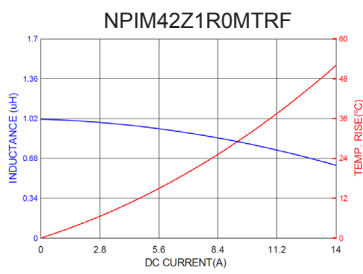
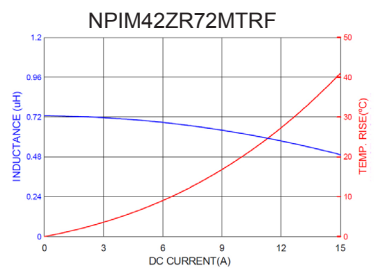
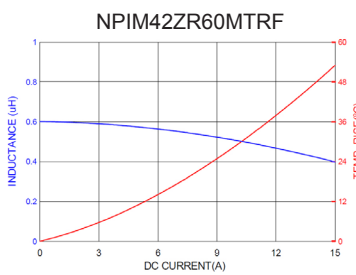
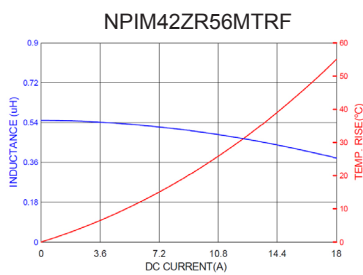
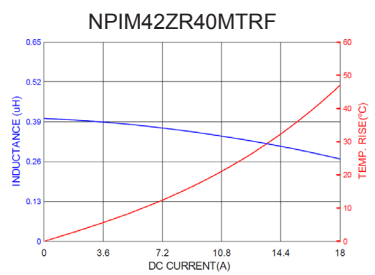
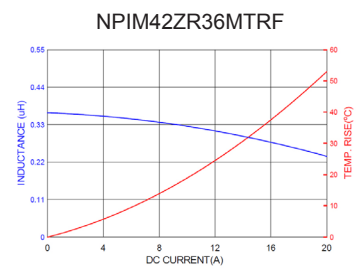
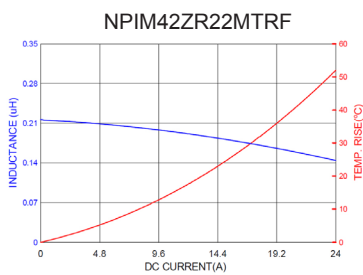
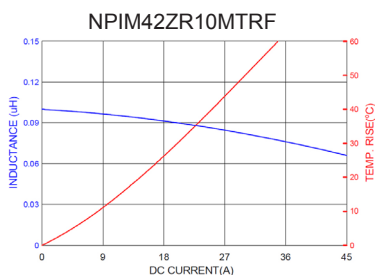


Note:

1. The above PCB layout reference only.
2. Recommend solder paste thickness at 0.15mm and above.

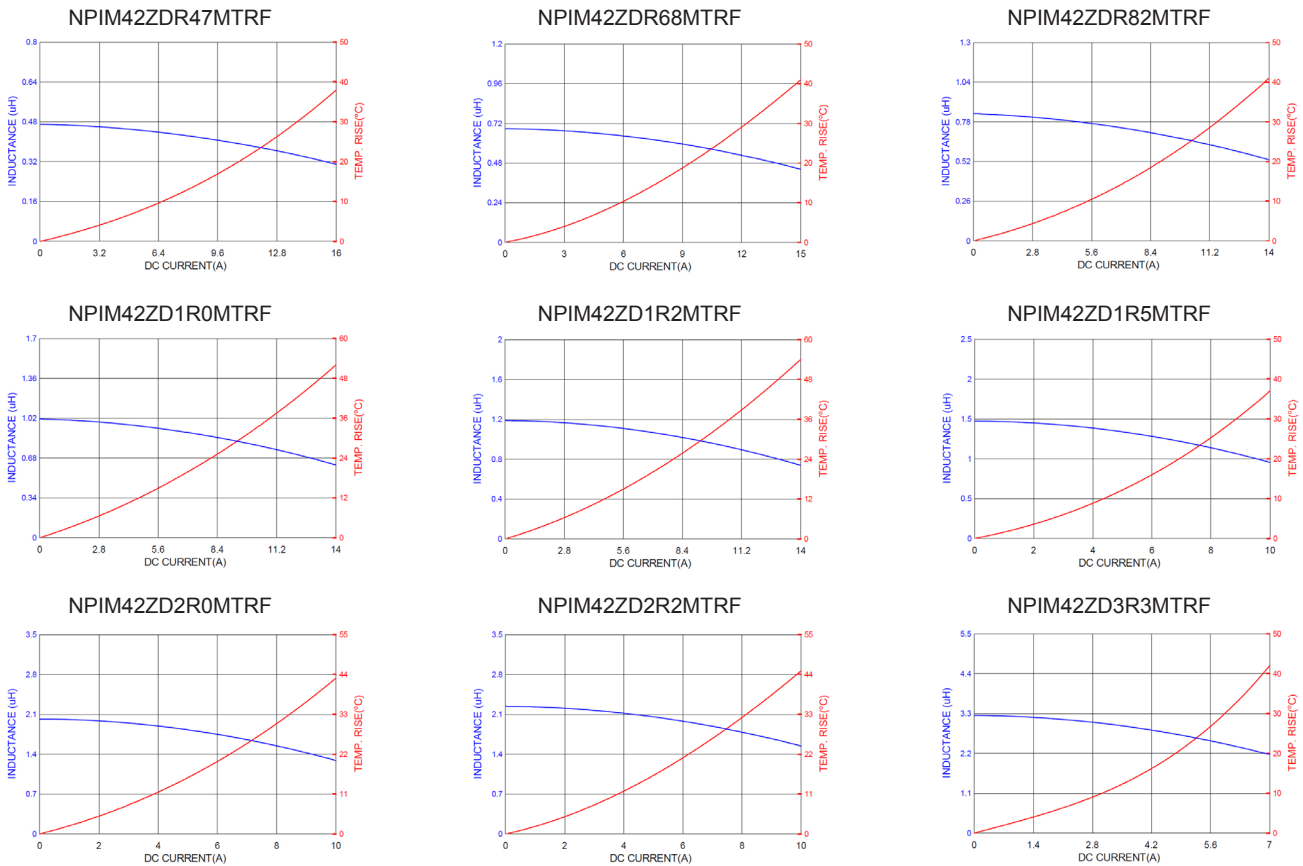
Part Number	STANDARD VALUES - CASE SIZE 42Z ( 4.1 X 4.1 X 1.9mm)						
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Max.	Isat (A) Typ.	AECQ200 Qualified Part Number
NPIM42ZR10MTRF	0.1	2.42	13.5	18	38	33	NPIM42ZR10MTRQYF
NPIM42ZR22MTRF	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



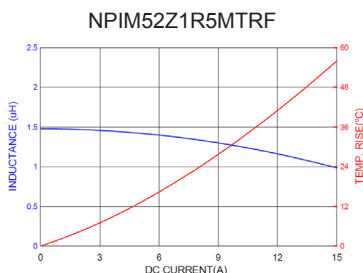
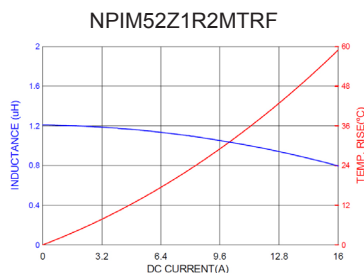
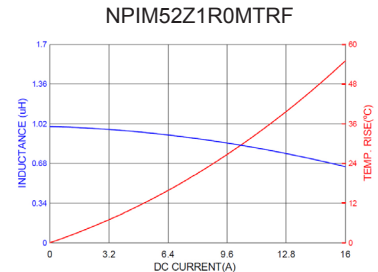
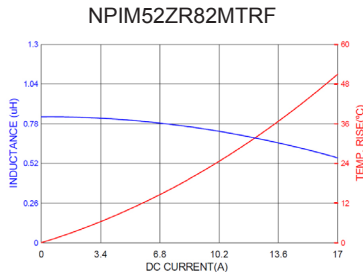
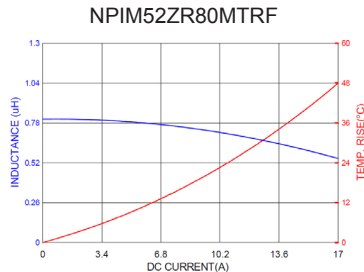
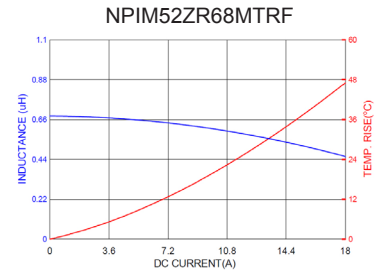
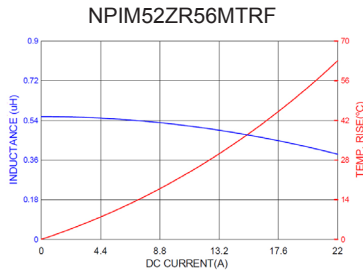
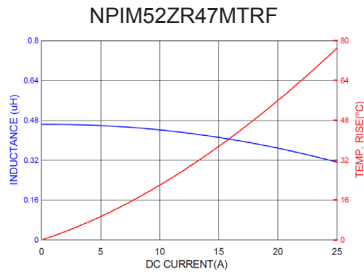
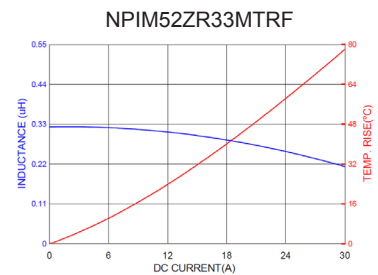
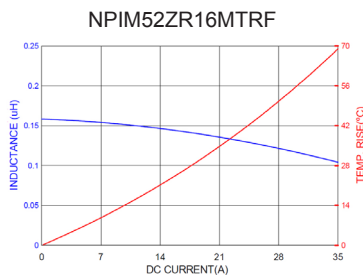
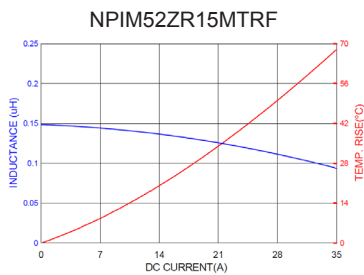
Part Number	LOW DCR "ZD" VALUES - CASE SIZE 42Z ( 4.1 X 4.1 X 1.9mm)						AECQ200 Qualified Part Number
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Max.	Isat (A) Typ.	
NPIM42ZDR47MTRF	0.47	6.8	9.8	13.2	14	12.5	NPIM42ZDR47MTRQYF
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

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



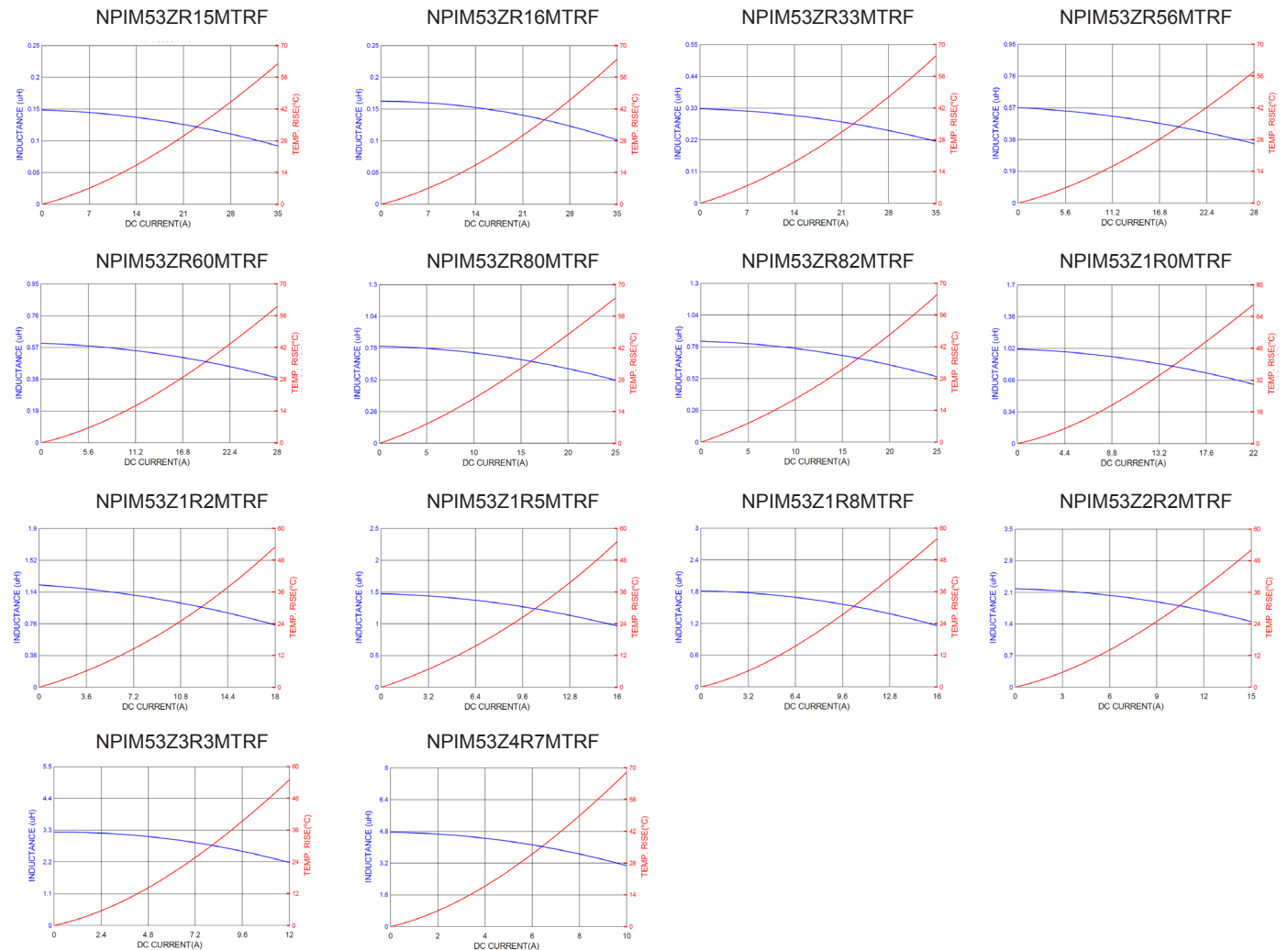
Part Number	STANDARD VALUES - CASE SIZE 52Z ( 5.5 X 5.3 X 1.9mm)						
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Max.	Isat (A) Typ.	AECQ200 Qualified Part Number
NPIM52ZR15MTRF	0.15	4.6	13.9	18.8	30	27	NPIM52ZR15MTRQYF
NPIM52ZR16MTRF	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



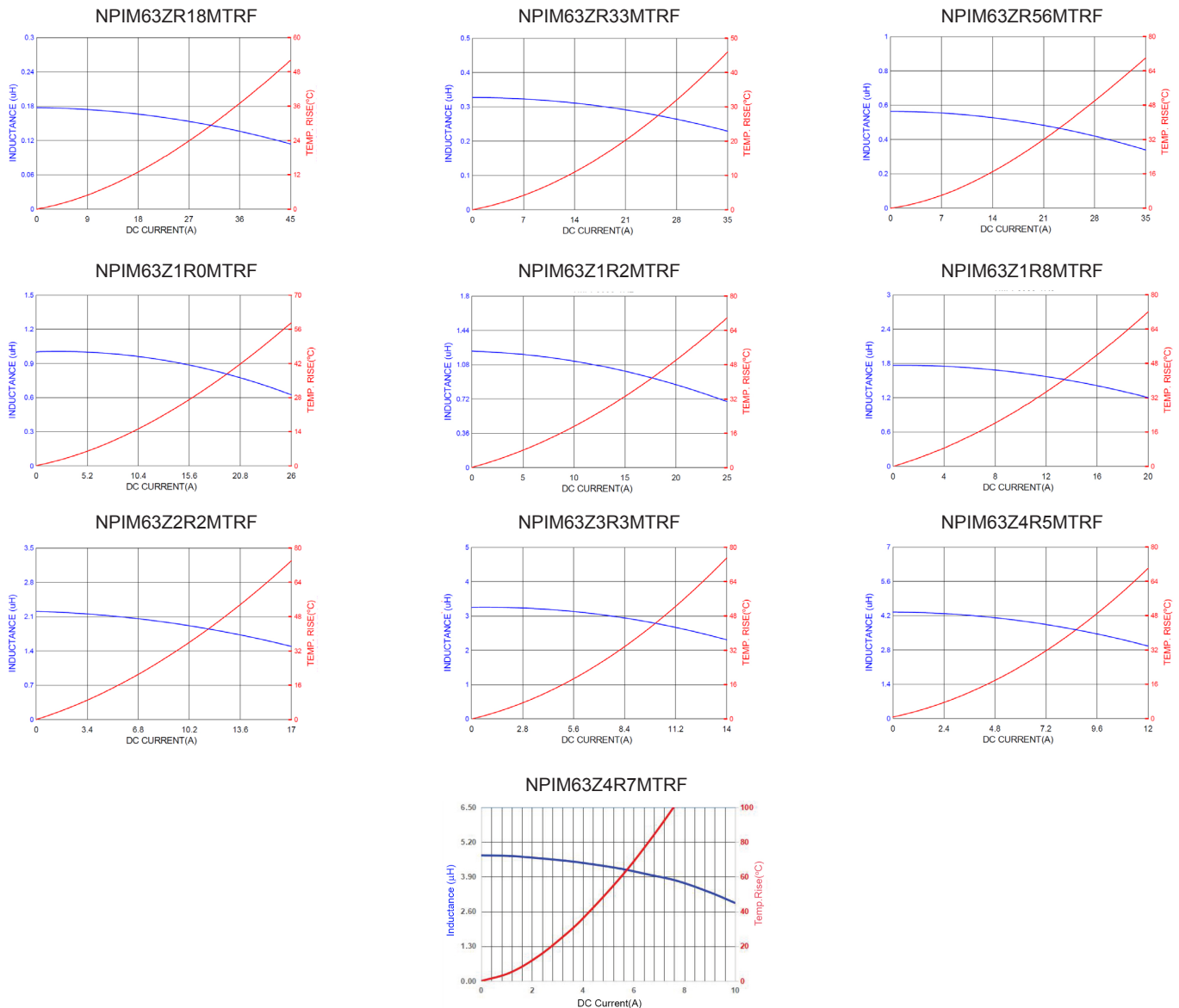
Part Number	STANDARD VALUES - CASE SIZE 53Z ( 5.5 X 5.3 X 2.9mm)						AECQ200 Qualified Part Number
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I rms (A)	+40C Rise I rms (A)	Isat (A) Max.	Isat (A) Typ.	
NPIM53ZR15MTRF	0.15	2.31	14.3	22.2	36	32.5	NPIM53ZR15MTRQYF
NPIM53ZR16MTRF	0.16	2.33	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



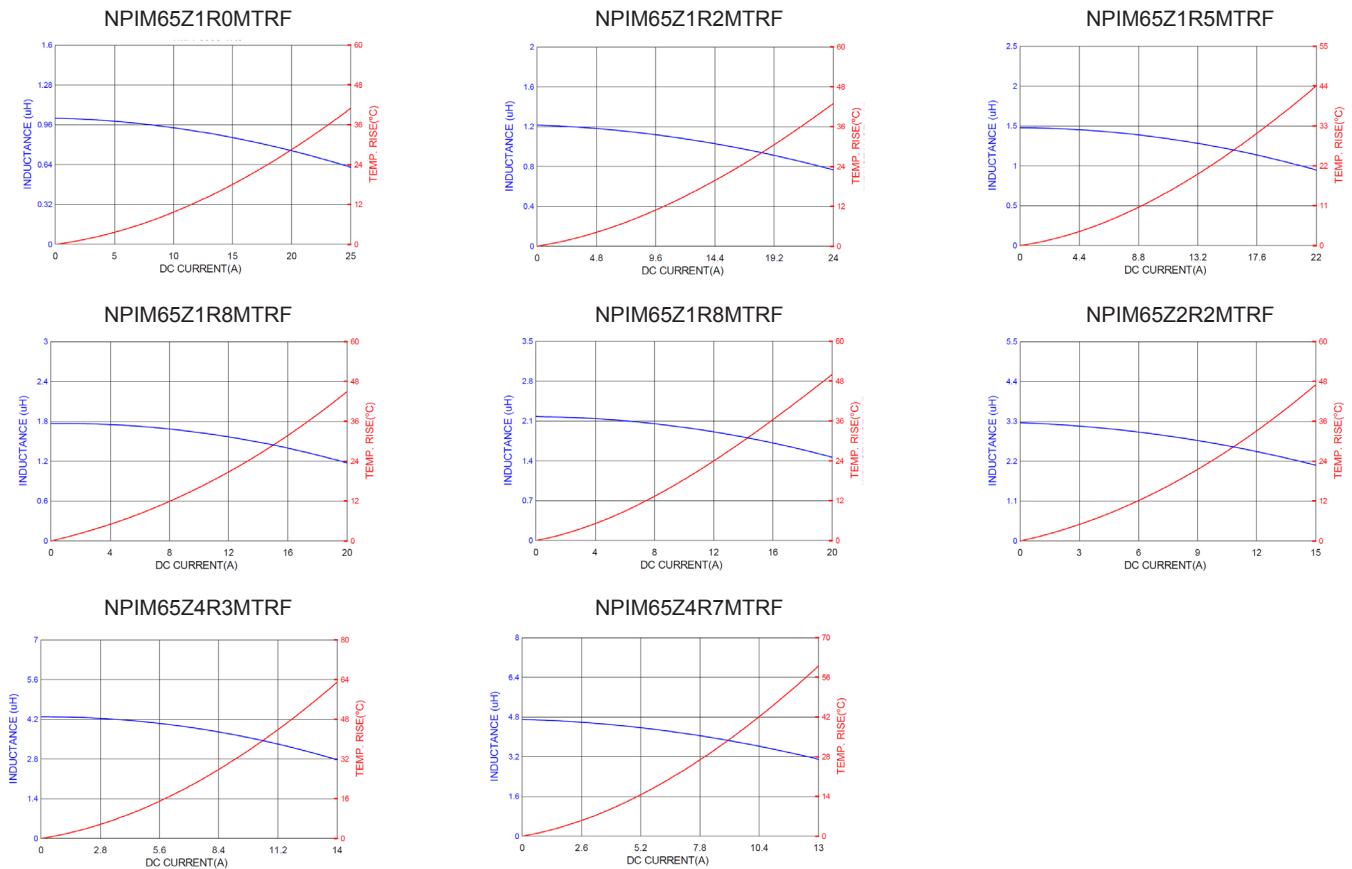
Part Number	STANDARD VALUES - CASE SIZE 63Z ( 6.6 X 6.4mm)								
	Inductance Value (μH)	DCR (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Max.	Isat (A) Typ.	C ± 0.2 (mm)	D ± 0.3 (mm)	AECQ200 Qualified Part Number
NPIM63ZR18MTRF	0.18	1.75	24	32	40	36	2.8	5.30	NPIM63ZR18MTRQYF
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	2.9	5.10	NPIM63Z1R8MTRQYF
NPIM63Z2R2MTRF	2.2	12.2	7	10	15.9	11		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
NPIM63Z4R7MTRF	4.7	29.2	4	6	9	7		5.00	NPIM63Z4R7MTRQYF

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



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) Max.	Isat (A) Typ.	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

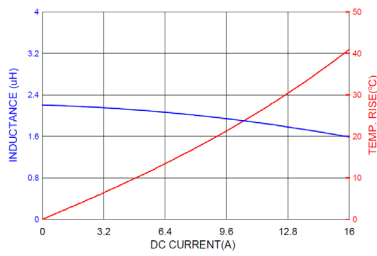




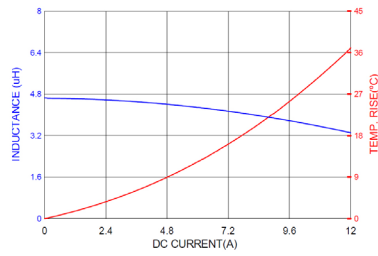
Part Number	STANDARD VALUES - CASE SIZE 66Z ( 6.6 X 6.4 X 5.8mm)						AECQ200 Qualified Part Number
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Max.	Isat (A) Typ.	
NPIM66Z2R2MTRF	2.2	7.8	11	14	12	14	NPIM66Z2R2MTRQYF
NPIM66Z4R7MTRF	4.7	14.4	8	11	9.5	10.5	NPIM66Z4R7MTRQYF
NPIM66Z5R6MTRF	5.6	15.8	7.5	10	9	10	NPIM66Z5R6MTRQYF
NPIM66Z6R8MTRF	6.8	20.8	7	9	8.7	9.2	NPIM66Z6R8MTRQYF
NPIM66Z8R2MTRF	8.2	24.8	6	8	8	8.5	NPIM66Z8R2MTRQYF

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

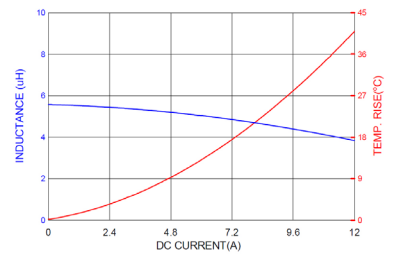
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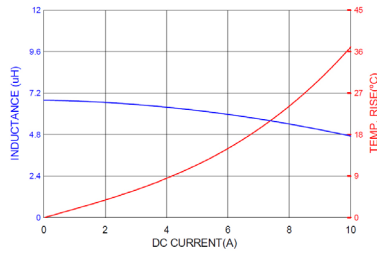
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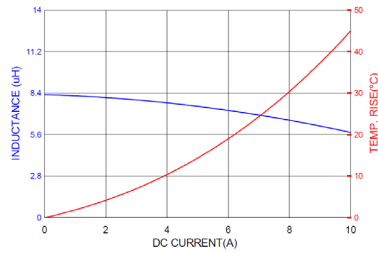
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NPIM66Z6R8MTRF

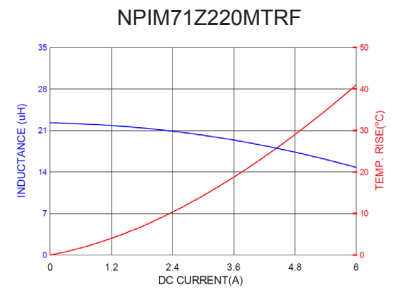
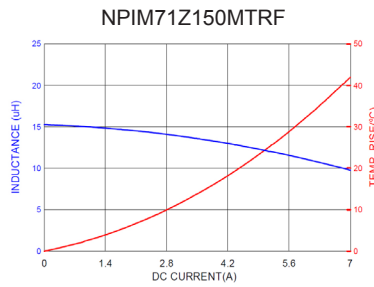
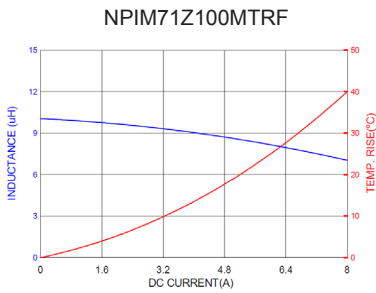


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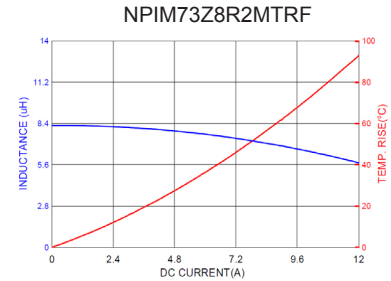
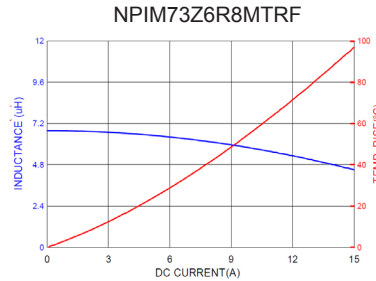
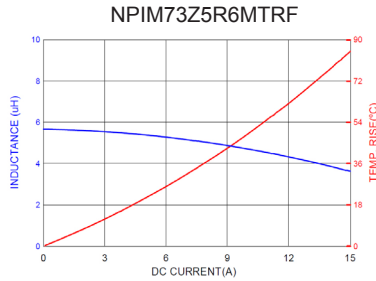
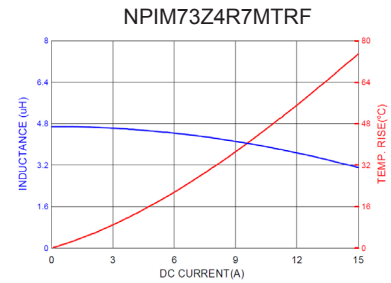
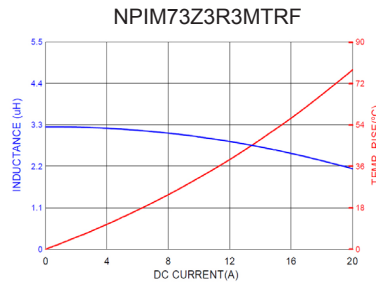
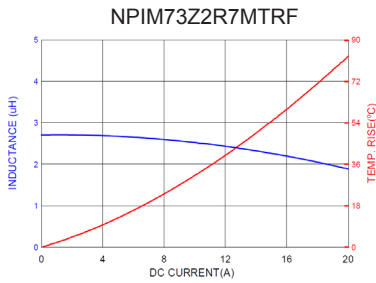
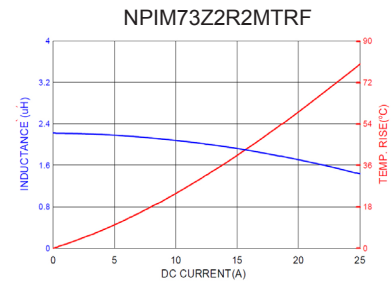
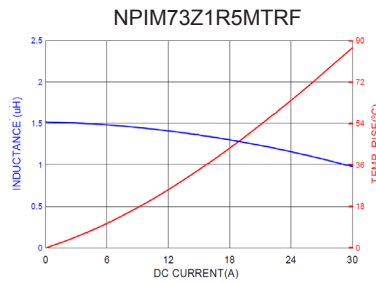
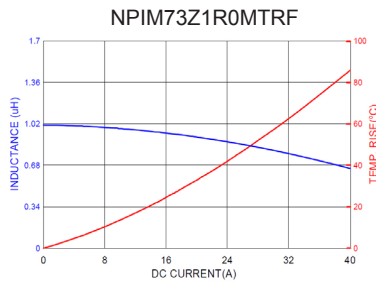
Part Number	STANDARD VALUES - CASE SIZE 71Z ( 7.2 X 6.9 X 5.8mm)						AECQ200 Qualified Part Number
	Inductance Value (μH)	DC Resistance (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Max.	Isat (A) Typ.	
NPIM71Z100MTRF	10	29.3	5	7	6.8	7.6	NPIM71Z100MTRQYF
NPIM71Z150MTRF	15	43	4.5	6	5.2	5.8	NPIM71Z150MTRQYF
NPIM71Z220MTRF	22	60.5	3.8	5	5	5.6	NPIM71Z220MTRQYF

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



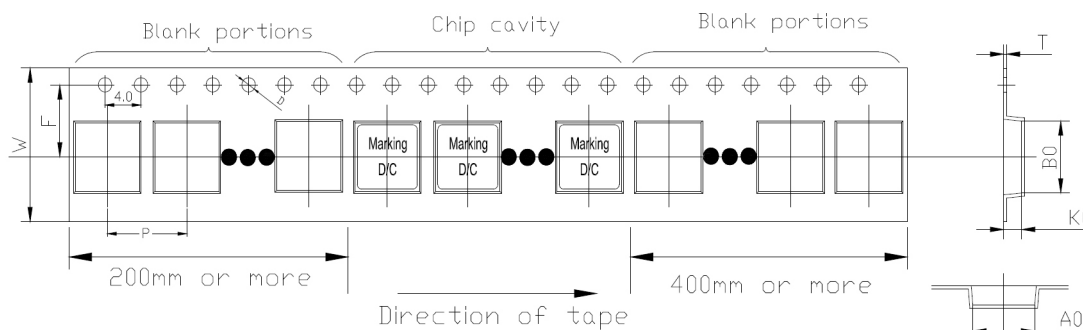
Part Number	STANDARD VALUES - CASE SIZE 73Z ( 7.8 X 7.6 X 2.9mm)							AECQ200 Qualified Part Number
	Inductance Value (μH)	DCR (mΩ) max.	+20C Rise I <sub>rms</sub> (A)	+40C Rise I <sub>rms</sub> (A)	Isat (A) Max.	Isat (A) Typ.	D ±0.3 (mm)	
NPIM73Z1R0MTRF	1	5	16.1	21.8	28	30	6.6	NPIM73Z1R0MTRQYF
NPIM73Z1R5MTRF	1.5	8.25	12	15.3	23.5	25		NPIM73Z1R5MTRQYF
NPIM73Z2R2MTRF	2.2	13.7	10	13	17	19		NPIM73Z2R2MTRQYF
NPIM73Z2R7MTRF	2.7	15.4	9.2	11.4	13.5	16	6.2	NPIM73Z2R7MTRQYF
NPIM73Z3R3MTRF	3.3	18	8	10	13	15		NPIM73Z3R3MTRQYF
NPIM73Z4R7MTRF	4.7	26.7	6.9	9	12.2	13.5		NPIM73Z4R7MTRQYF
NPIM73Z5R6MTRF	5.6	33.2	5.3	7.3	11.5	12.5		NPIM73Z5R6MTRQYF
NPIM73Z6R8MTRF	6.8	42.5	4.5	6.8	11	12		NPIM73Z6R8MTRQYF
NPIM73Z8R2MTRF	8.2	48.73	3	5.9	9	10.2		NPIM73Z8R2MTRQYF

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



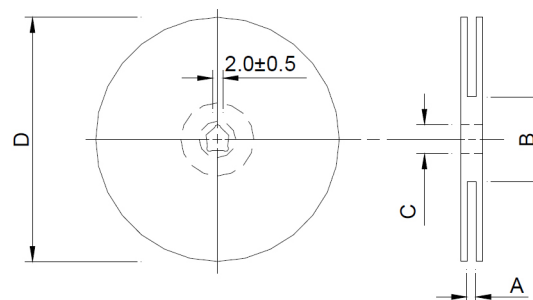
### CARRIER TAPE DIMENSIONS (mm)

Series	Ao	Bo	Ko	P	W	F	T	D
NPIM42Z(D)	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	5.6 ± 0.1	5.8 ± 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
NPIM66Z	7.0 ± 0.1	6.8 ± 0.1	6.3 ± 0.1	12.0 ± 0.1	16 ± 0.3	7.5 ± 0.1	0.35 ± 0.1	1.5 ± 0.1
NPIM73Z	8.2 ± 0.1	8.0 ± 0.1	3.3 ± 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(D)	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				
NPIM66Z	750				
NPIM73Z	16.4 +2/-0	1,500			



### REFLOW SOLDERING PROFILE

