

晶睿通訊股份有限公司 VIVOTEK INC.

(硬體) 零組件承認需求單

廠商名稱	TAIYO/惠德科技	廠商連絡人	賴國榕	連絡電話	(02)7730-2600
晶睿零件料號	350044100G			填表日期	2018/10/8
品名	NRS4018T2R2MDGJ				

項次	承認文件需求項目	有提供請打 V	無法提供請說明原因/備註事項
1	封裝圖示 / 外觀圖示	(在第 1 頁)	<input type="checkbox"/> 不適用 <input type="checkbox"/> 其他原因, 請說明:
2	Marking 編碼原則	(在第 2 頁)	<input type="checkbox"/> 不適用 <input type="checkbox"/> 其他原因, 請說明:
3	D/C & L/C 編碼原則	(在第 3 頁)	<input type="checkbox"/> 不適用 <input type="checkbox"/> 其他原因, 請說明:
4	UL 黃卡資訊 (非 UL 物料可不需提供)	(在第 頁)	<input checked="" type="checkbox"/> 不適用 <input type="checkbox"/> 其他原因, 請說明:
5	Safety Critical Component 相關資訊 [PCB、FUSE、電源 IC、TRAF、ECAP、INDU、CHOKE(線圈)]	物料有符合以下 認認證請打 V	無法提供請說明原因/備註事項
(1) UL <input type="checkbox"/> (2) SEMKO <input type="checkbox"/> (3) VDE <input type="checkbox"/> (4) PSE <input type="checkbox"/> (5) Rohs <input type="checkbox"/>			<input type="checkbox"/> 不適用 <input type="checkbox"/> 其他原因, 請說明:

承認文件與承認物料需符合以下事項

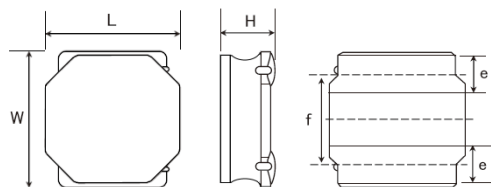
1. 濕敏元件需符合 J-STD-033C 國際標準及真空包裝要求。
2. 外盒需要有 D/C 資訊, 以便追蹤。
3. 外箱與外盒上都需要有晶睿料號與 品名, 標示可參考下圖。

晶睿料號			
品名規格			
數量	PCS		廠商檢驗記錄
供應廠商			
進貨日期			
P/O No.	進貨批量	PCS	

連絡事項	
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SMD Power Inductors (NR series S type)

NRS4018T2R2MDGJ



■ Features

- Item Summary
2.2uH±20%, 2.2A, 4.0x4.0x1.8mm
- Lifecycle Stage
Mass Production
- Standard packaging quantity (minimum)
Taping Embossed 3500pcs

■ Products characteristics table

Inductance	2.2 uH ± 20 %
Case Size (mm)	4.0x4.0
Rated Current (max)	2.2 A
Saturation Current (max)	3 A (ΔL=30%)
Saturation Current (typ)	3.11 A (ΔL=30%)
Temperature Rise Current (max)	2.2 A (ΔT=40°C)
Temperature Rise Current (typ)	2.59 A (ΔT=40°C)
DC Resistance (max)	50.4 mΩ
DC Resistance (typ)	42 mΩ
LQ Measuring Frequency	100 kHz
Self Resonant Frequency (min)	60 MHz
Operating Temp. Range	-25 to +125 °C (Including-self-generated heat)
Temperature characteristic (Inductance change)	± 20 %
RoHS2 Compliance (10 subst.)	Yes
REACH Compliance (181 subst.)	Yes
Halogen Free	Yes
Soldering	Reflow

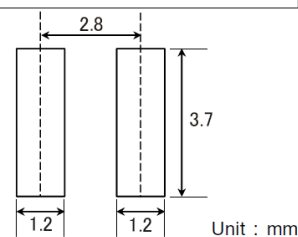
■ External Dimensions

Dimension L	4.0 ± 0.2 mm
Dimension W	4.0 ± 0.2 mm
Dimension H	Max 1.8 mm
Dimension e	1.1 ± 0.2 mm
Dimension f	2.5 ± 0.2 mm

■ Recommended Land Patterns

【推奨ランドパターン】
実装上の注意
・実装状態を確認の上ご使用くださいますようお願いいたします。
・本製品のはんだ付けはリフローはんだ工法に限りします。

【Recommended Land Patterns】
Surface Mounting
・Mounting and soldering conditions should be checked beforehand.
・Applicable soldering process to these products is reflow soldering only.



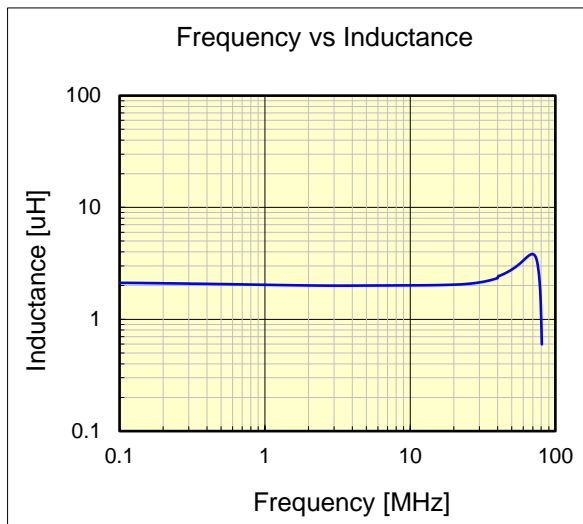
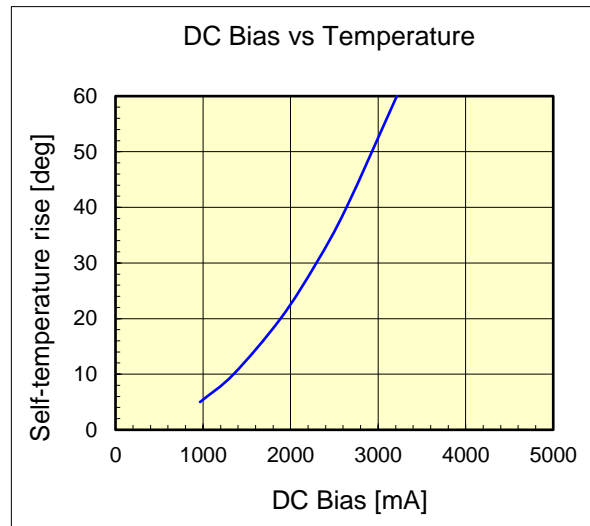
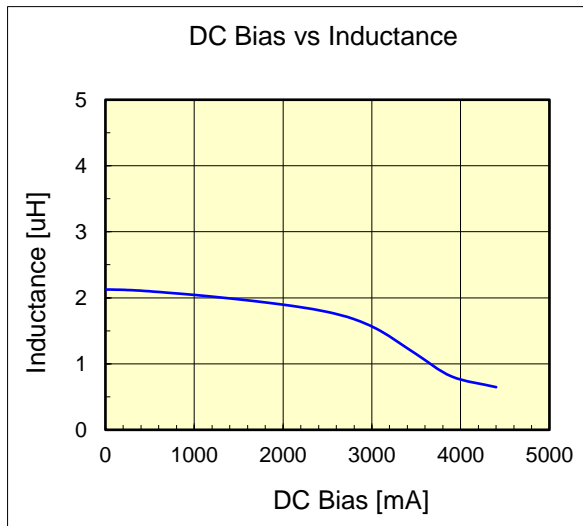
SMD Power Inductors (NR series S type)

NRS4018T2R2MDGJ



Dimension	unit : mm	unit : inch
Length :	4.0 +/- 0.2	(0.157 +/- 0.008)
Width :	4.0 +/- 0.2	(0.157 +/- 0.008)
Height :	1.8 max.	(0.071 max.)

Inductance : 2.2 uH (test freq at 0.1MHz)
 DC Resistance : 0.042 / 0.0504 ohm (typ / max)
 Saturation Current : 3,000 mA (max)
 Temp. rise Current : 2,200 mA (max)
 Saturation current typical : 30% reduction from initial L value.
 Temp rise Current typical : Temperature will rise by 40 deg C



The data is reference only. Electrical characteristics vary depending on environment or measurement condition. TAIYO YUDEN reserves the right to make change to the data at any time without notice. Before making final selection, please check product specification.

Please read this notice before using the TAIYO YUDEN products.



REMINDERS

- Please conduct validation and verification of our products in actual condition of mounting and operating environment before using our products.
- The product listed in this spec sheet is intended for use in general electronic equipment (e.g., AV equipment, OA equipment, home electric appliances, office equipment, information and communication equipment including, without limitation, mobile phone, and PC) and medical equipment classified as Class I or II by IMDRF. Please be sure to contact TAIYO YUDEN for further information before using the products for any equipment which may directly cause loss of human life or bodily injury (e.g., transportation equipment including, without limitation, automotive powertrain control system, train control system, and ship control system, traffic signal equipment, disaster prevention equipment, medical equipment classified as Class III by IMDRF, highly public information network equipment including, without limitation, telephone exchange, and base station).

Please do not incorporate our products into any equipment requiring high levels of safety and/or reliability (e.g., aerospace equipment, aviation equipment*, medical equipment classified as Class IV by IMDRF, nuclear control equipment, undersea equipment, military equipment).

*Note: There is a possibility that our products can be used only for aviation equipment that does not directly affect the safe operation of aircraft (e.g., in-flight entertainment, cabin light, electric seat, cooking equipment) if such use meets requirements specified separately by TAIYO YUDEN. Please be sure to contact TAIYO YUDEN for further information before using our products for such aviation equipment.

When our products are used even for high safety and/or reliability-required devices or circuits of general electronic equipment, it is strongly recommended to perform a thorough safety evaluation prior to use of our products and to install a protection circuit as necessary.

Please note that unless you obtain prior written consent of TAIYO YUDEN, TAIYO YUDEN shall not be in any way responsible for any damages incurred by you or third parties arising from use of the product listed in this spec sheet for any equipment requiring inquiry to TAIYO YUDEN or prohibited for use by TAIYO YUDEN as described above.

- Information contained in this spec sheet is intended to convey examples of typical performances and/or applications of our products and is not intended to make any warranty with respect to the intellectual property rights or any other related rights of TAIYO YUDEN or any third parties nor grant any license under such rights.
- Please note that the scope of warranty for our products is limited to the delivered our products themselves and TAIYO YUDEN shall not be in any way responsible for any damages resulting from a fault or defect in our products. Notwithstanding the foregoing, if there is a written agreement (e.g., supply and purchase agreement, quality assurance agreement) signed by TAIYO YUDEN and your company, TAIYO YUDEN will warrant our products in accordance with such agreement.
- The contents of this spec sheet are applicable to our products which are purchased from our sales offices or authorized distributors (hereinafter “TAIYO YUDEN’s official sales channel”). Please note that the contents of this spec sheet are not applicable to our products purchased from any seller other than TAIYO YUDEN’s official sales channel.
- Caution for Export
The product listed in this spec sheet may require specific procedures for export according to “U.S. Export Administration Regulations”, “Foreign Exchange and Foreign Trade Control Law” of Japan, and other applicable regulations. Should you have any questions on this matter, please contact our sales staff.

SMD 功率电感器 (NR 系列 / NR 系列 H 型 / S 型 / V 型)



回流焊

■ 型号标示法

※使用温度范围: -25~+120°C (NRS40/50/60/80: -25~+125°C) (包含产品本身发热)

N R Δ	4 0 1 8	T Δ	1 0 0	M Δ
①	②	③	④	⑤ ⑥

Δ = 空格

① 类型

代码	类型
NR Δ	外装树脂规格
NRH	
NRS	
NRV	

③ 包装

代码	包装
T Δ	卷盘带装

② 尺寸 (L×W×H)

代码	尺寸 (L×W×H) [mm]
2010	2.0×2.0×1.0
2012	2.0×2.0×1.2
2410	2.4×2.4×1.0
2412	2.4×2.4×1.2
3010	3.0×3.0×1.0
3012	3.0×3.0×1.2
3015	3.0×3.0×1.5
4010	4.0×4.0×1.0
4012	4.0×4.0×1.2
4018	4.0×4.0×1.8
5010	4.9×4.9×1.0
5012	4.9×4.9×1.2
5014	4.9×4.9×1.4
5020	4.9×4.9×2.0
5024	4.9×4.9×2.4
5030	4.9×4.9×3.0
5040	4.9×4.9×4.0
6010	6.0×6.0×1.0
6012	6.0×6.0×1.2
6014	6.0×6.0×1.4
6020	6.0×6.0×2.0
6028	6.0×6.0×2.8
6045	6.0×6.0×4.5
8030	8.0×8.0×3.0
8040	8.0×8.0×4.0

④ 标称电感值

代码 (例)	标称电感值 [μ H]
2R2	2.2
100	10
101	100

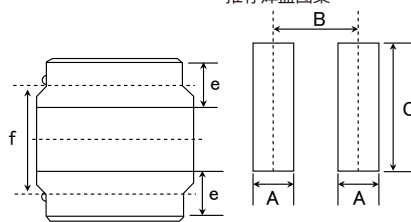
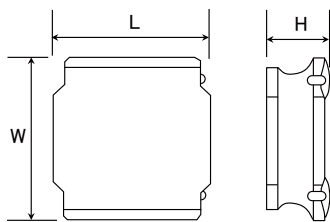
※R=小数点

⑤ 电感量公差

代码	电感量公差
M	±20%
N	±30%

⑥ 本公司管理记号

■ 标准外型尺寸 / 标准数量



推荐焊盘图案

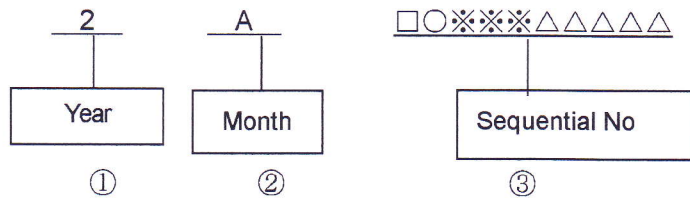
Type	A	B	C
NRV2010	0.65	1.35	2.0
NRS2012, NRV2012			
NRH2410	0.7	1.45	2.0
NRH2412			
NR 3010, NRH3010			
NR 3012, NRH3012, NRV3012	0.8	2.2	2.7
NR 3015, NRS3015			
NR 4010, NRS4010			
NR 4012, NRS4012	1.2	2.8	3.7
NR 4018, NRS4018			
NRS8030			
NR 8040, NRS8040	1.8	5.6	7.5

单位: mm

Type	L	W	H	e	f	标准数量 [pcs] 卷盘带装
NRV2010	2.0±0.1 (0.079±0.004)	2.0±0.1 (0.079±0.004)	1.0 max (0.039 max)	0.5±0.2 (0.020±0.008)	1.25±0.2 (0.050±0.008)	2500
NRS2012 NRV2012	2.0±0.1 (0.079±0.004)	2.0±0.1 (0.079±0.004)	1.2 max (0.047 max)	0.5±0.2 (0.020±0.008)	1.25±0.2 (0.050±0.008)	2500
NRH2410	2.4±0.1 (0.095±0.004)	2.4±0.1 (0.095±0.004)	1.0 max (0.039 max)	0.6±0.2 (0.024±0.008)	1.45±0.2 (0.057±0.008)	2500
NRH2412	2.4±0.1 (0.095±0.004)	2.4±0.1 (0.095±0.004)	1.2 max (0.047 max)	0.6±0.2 (0.024±0.008)	1.45±0.2 (0.057±0.008)	2500
NR 3010 NRH3010	3.0±0.1 (0.118±0.004)	3.0±0.1 (0.118±0.004)	1.0 max (0.039 max)	0.9±0.2 (0.035±0.008)	1.9±0.2 (0.075±0.008)	2000

▶ 由于篇幅有限, 本产品目录中只记载了有代表性的产品规格, 若考虑使用贵司产品时, 请确认交货规格说明书中的详细规格。另外, 有关各产品的详细信息(特性图、可靠性信息、使用时的注意事项等), 请参阅贵司网站 (<http://www.ty-top.com/>)。

Shipping Lot No.



- ① First digit of manufactured year Example: 2012year → 2
- ② Manufactured month and its symbol are described in below table.
- ③ Sequential number is consist of alphabet, numeric and space.

Month	1	2	3	4	5	6	7	8	9	10	11	12
code	A	B	C	D	E	F	G	H	J	K	L	M

TO: HIT ELECTRONIC CO. LTD.

RoHS Declaration of Conformity

We hereby declare that TAIYO YUDEN Products listed below are fully compliant with the following requirement of EU RoHS Directive 2011/65/EU(incl. Directive(EU) 2015/863).

Products :

Part Name	SMD Power Inductors
P/N (series)	NR_2010-8040_

Requirement :

Not contain the substances more than the maximum concentration value tolerated by weight in homogeneous materials as specified in Annex II except for the applications in Annex III.

Annex II :

Restricted substances referred to in Article 4(1) and maximum concentration values tolerated by weight in homogeneous materials:

Lead (0,1 %)	Bis(2-ethylhexyl) phthalate (DEHP) (0,1 %)
Mercury (0,1 %)	Butyl benzyl phthalate (BBP) (0,1 %)
Cadmium (0,01 %)	Dibutyl phthalate (DBP) (0,1 %)
Hexavalent chromium (0,1 %)	Diisobutyl phthalate (DIBP) (0,1 %)
Polybrominated biphenyls (PBB) (0,1 %)	
Polybrominated diphenyl ethers (PBDE) (0,1 %)	

Annex III :

Applications exempted from the restriction in Article 4(1)



<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:174:0088:0110:EN:PDF>

Commencing time on a delivery basis :

RoHS Compliance	04-Jun-15
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Remarks :

1	Verification : This declaration is based on vendor MSDS, certifications and 3rd party test reports of all materials, including materials that are added during our production process.
2	How to identify : The mark, "RoHS", is printed on the packing label for the "RoHS Compliance" products.
3	Note on Annex III : The products above do not use any exemption in Annex III. There is no influence to the state of RoHS compliance by the expired exemptions.
4	Note on PBDE : Including Deca-BDE
5	
6	

Signature :  Yutaka Irisawa, General Manager Quality Assurance Department TAIYO YUDEN CO., LTD.	Company Seal : 
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TO: HIT ELECTRONIC CO. LTD.

RoHS Declaration of Conformity

We hereby declare that TAIYO YUDEN Products listed below are fully compliant with the following requirement of EU RoHS Directive 2011/65/EU(incl. Directive(EU) 2015/863).

Products :

Part Name	SMD Power Inductors
P/N (series)	NR10050_

Requirement :

Not contain the substances more than the maximum concentration value tolerated by weight in homogeneous materials as specified in Annex II except for the applications in Annex III.

Annex II :

Restricted substances referred to in Article 4(1) and maximum concentration values tolerated by weight in homogeneous materials:

Lead (0,1 %)	Bis(2-ethylhexyl) phthalate (DEHP) (0,1 %)
Mercury (0,1 %)	Butyl benzyl phthalate (BBP) (0,1 %)
Cadmium (0,01 %)	Dibutyl phthalate (DBP) (0,1 %)
Hexavalent chromium (0,1 %)	Diisobutyl phthalate (DIBP) (0,1 %)
Polybrominated biphenyls (PBB) (0,1 %)	
Polybrominated diphenyl ethers (PBDE) (0,1 %)	

Annex III :

Applications exempted from the restriction in Article 4(1)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:174:0088:0110:EN:PDF>

Commencing time on a delivery basis :

RoHS Compliance	04-Jun-15
-----------------	-----------

Remarks :

1	Verification : This declaration is based on vendor MSDS, certifications and 3rd party test reports of all materials, including materials that are added during our production process.
2	How to identify : The mark, "RoHS", is printed on the packing label for the "RoHS Compliance" products.
3	Note on Annex III : The products above do not use any exemption in Annex III. There is no influence to the state of RoHS compliance by the expired exemptions.
4	Note on PBDE : Including Deca-BDE
5	
6	

Signature :

Y. Irisawa

Yutaka Irisawa, General Manager
Quality Assurance Department
TAIYO YUDEN CO., LTD.

Company Seal :



DATE: 22-Sep-17

TO: HIT ELECTRONIC CO. LTD.

RoHS Declaration of Conformity

We hereby declare that TAIYO YUDEN Products listed below are fully compliant with the following requirement of EU RoHS Directive 2011/65/EU(incl. Directive(EU) 2015/863).

Products :

Part Name	SMD Power Inductors
P/N (series)	NS_

Requirement :

Not contain the substances more than the maximum concentration value tolerated by weight in homogeneous materials as specified in Annex II except for the applications in Annex III.

Annex II :

Restricted substances referred to in Article 4(1) and maximum concentration values tolerated by weight in homogeneous materials:

Lead (0,1 %)	Bis(2-ethylhexyl) phthalate (DEHP) (0,1 %)
Mercury (0,1 %)	Butyl benzyl phthalate (BBP) (0,1 %)
Cadmium (0,01 %)	Dibutyl phthalate (DBP) (0,1 %)
Hexavalent chromium (0,1 %)	Diisobutyl phthalate (DIBP) (0,1 %)
Polybrominated biphenyls (PBB) (0,1 %)	
Polybrominated diphenyl ethers (PBDE) (0,1 %)	

Annex III :

Applications exempted from the restriction in Article 4(1)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:174:0088:0110:EN:PDF>

Commencing time on a delivery basis :

RoHS Compliance	04-Jun-15
-----------------	-----------

Remarks :

1	Verification : This declaration is based on vendor MSDS, certifications and 3rd party test reports of all materials, including materials that are added during our production process.
2	How to identify : The mark, "RoHS", is printed on the packing label for the "RoHS Compliance" products.
3	Note on Annex III : The products above do not use any exemption in Annex III. There is no influence to the state of RoHS compliance by the expired exemptions.
4	Note on PBDE : Including Deca-BDE
5	
6	

Signature :



Yutaka Irisawa, General Manager
Quality Assurance Department
TAIYO YUDEN CO., LTD.

Company Seal :



DATE: 22-Sep-17

TO: HIT ELECTRONIC CO. LTD.

RoHS Declaration of Conformity

We hereby declare that TAIYO YUDEN Products listed below are fully compliant with the following requirement of EU RoHS Directive 2011/65/EU(incl. Directive(EU) 2015/863).

Products :

Part Name	Metal Core SMD Power Inductors(MCOIL)
P/N (series)	MD_

Requirement :

Not contain the substances more than the maximum concentration value tolerated by weight in homogeneous materials as specified in Annex II except for the applications in Annex III.

Annex II :

Restricted substances referred to in Article 4(1) and maximum concentration values tolerated by weight in homogeneous materials:

Lead (0,1 %)	Bis(2-ethylhexyl) phthalate (DEHP) (0,1 %)
Mercury (0,1 %)	Butyl benzyl phthalate (BBP) (0,1 %)
Cadmium (0,01 %)	Dibutyl phthalate (DBP) (0,1 %)
Hexavalent chromium (0,1 %)	Diisobutyl phthalate (DIBP) (0,1 %)
Polybrominated biphenyls (PBB) (0,1 %)	
Polybrominated diphenyl ethers (PBDE) (0,1 %)	

Annex III :

Applications exempted from the restriction in Article 4(1)

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:174:0088:0110:EN:PDF>

Commencing time on a delivery basis :

RoHS Compliance	04-Jun-15
-----------------	-----------

Remarks :

1	Verification : This declaration is based on vendor MSDS, certifications and 3rd party test reports of all materials, including materials that are added during our production process.
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3	Note on Annex III : The products above do not use any exemption in Annex III. There is no influence to the state of RoHS compliance by the expired exemptions.
4	Note on PBDE : Including Deca-BDE
5	
6	

Signature :

Y. Irisawa

Yutaka Irisawa, General Manager
Quality Assurance Department
TAIYO YUDEN CO., LTD.

Company Seal :



Parts list

No.	TAIYO P/N
1	MDJE4040T100MM
2	MDJE4040T1R0MM
3	MDJE4040T1R5MM
4	MDJE4040T2R2MM
5	MDJE4040T3R3MM
6	MDJE4040T4R7MM
7	MDJE4040T6R8MM
8	MDJE4040TR47MM
9	MDKK1616T4R7MM
10	MDKK3030T100MM
11	MDMK2020T1R0MM
12	MDMK2020TR68MM
13	MDMK3030T2R2MM
14	MDMK4040T2R2MF V
15	MDMK4040T2R2MM
16	MDMK4040T4R7MM
17	MDWK4040T1R0MM
18	MDWK4040T1R5MM
19	NR 10050T 100M
20	NR 10050T 101M
21	NR 10050T 150M
22	NR 10050T 1R3N
23	NR 10050T 220M
24	NR 10050T 221M
25	NR 10050T 2R1N
26	NR 10050T 2R9N
27	NR 10050T 330M
28	NR 10050T 3R8N
29	NR 10050T 470M
30	NR 10050T 4R9N
31	NR 10050T 680M
32	NR 10050T 6R5N
33	NR 3010T 100M
34	NR 3012T 100M
35	NR 3015T 1R5N
36	NR 3015T 2R2M
37	NR 3015T 6R8M
38	NR 4010T 100M
39	NR 4010T 6R8M
40	NR 4012T 100M
41	NR 4018T 150M
42	NR 4018T 220M
43	NR 4018T 2R2M
44	NR 5040T 100M
45	NR 5040T 150M
46	NR 5040T 2R2N
47	NR 5040T 470M
48	NR 5040T 4R7N
49	NR 6012T 100M
50	NR 6020T 100M
51	NR 6020T 220M
52	NR 6028T 1R5N
53	NR 6028T 470M
54	NR 6028T 4R7M
55	NR 6028T 680M

No.	TAIYO P/N
56	NR 6045T 100M
57	NR 6045T 220M
58	NR 6045T 470M
59	NR 8040T 150M
60	NR 8040T 220M
61	NR 8040T 330M
62	NR 8040T 4R7N
63	NRA4010T 100M
64	NRA6012T 100ME
65	NRG4026T 100M
66	NRG4026T 150M
67	NRG4026T 470M
68	NRH2410T 150MN
69	NRH2410T 2R2MN
70	NRH2410T 3R3MN
71	NRH2410T 4R7MN
72	NRH2412T R47NNGJ
73	NRH3010T 100MN
74	NRH3010T 4R7MN
75	NRH3012T 220MN
76	NRH3012T 2R2MN
77	NRS2012T 4R7M GJ
78	NRS3015T 100MNGH
79	NRS3015T 2R2MNGH
80	NRS3015T 4R7MNGH
81	NRS4010T 4R7MDGG
82	NRS4010T 6R8M GF
83	NRS4010T 6R8MDGG
84	NRS4012T 100MDGJ
85	NRS4018T 100MDGJ
86	NRS4018T 1R0NDGJ
87	NRS4018T 220MDGJ
88	NRS4018T 2R2MDGJ
89	NRS4018T 470MDGJ
90	NRS4018T 4R7MDGJ
91	NRS4018T 6R8MDGJ
92	NRS5012T 4R7MMGF
93	NRS5014T 4R7NMGG
94	NRS5020T 4R7MMGJ
95	NRS5024T 4R7MMGJ
96	NRS5030T 100MMGJ
97	NRS5030T 6R8MMGJ
98	NRS5040T 100MMGJ
99	NRS5040T 220MMGK
100	NRS5040T 220MMGKV
101	NRS5040T 2R2NMGJ
102	NRS5040T 3R3NMGJ
103	NRS5040T 4R7NMGK
104	NRS6010T 100MMGF
105	NRS6012T 100MMGJ
106	NRS6012T 220MMGJ
107	NRS6012T 6R8MMGJ
108	NRS6014T 220MMGGV
109	NRS6020T 100MMGG
110	NRS6028T 100MMGK

No.	TAIYO P/N
111	NRS6028T 150MMGJ
112	NRS6028T 1R5NMGJ
113	NRS6028T 2R2NMGJ
114	NRS6028T 3R0NMGJ
115	NRS6028T 4R7MMGK
116	NRS6045T 100MMGK
117	NRS6045T 101MMGKV
118	NRS6045T 150MMGKV
119	NRS6045T 1R0NMGK
120	NRS6045T 330MMGK
121	NRS6045T 470MMGK
122	NRS6045T 680MMGK
123	NRS8030T 100MJGJ
124	NRS8030T 4R7MJGJ
125	NRS8040T 100MJGJ
126	NRS8040T 4R7NJGJ
127	NRV2012T 4R7M GF
128	NRV3012T 1R0N
129	NRV3012T 2R2M
130	NS 10145T 100MNA
131	NS 10155T 100MNA
132	NS 10165T 100MNA
133	NS 12555T 101MN
134	NS 12565T 101MN
135	NS 12575T 101MN