IRM selection guide

2020/06/01

RDOEFA

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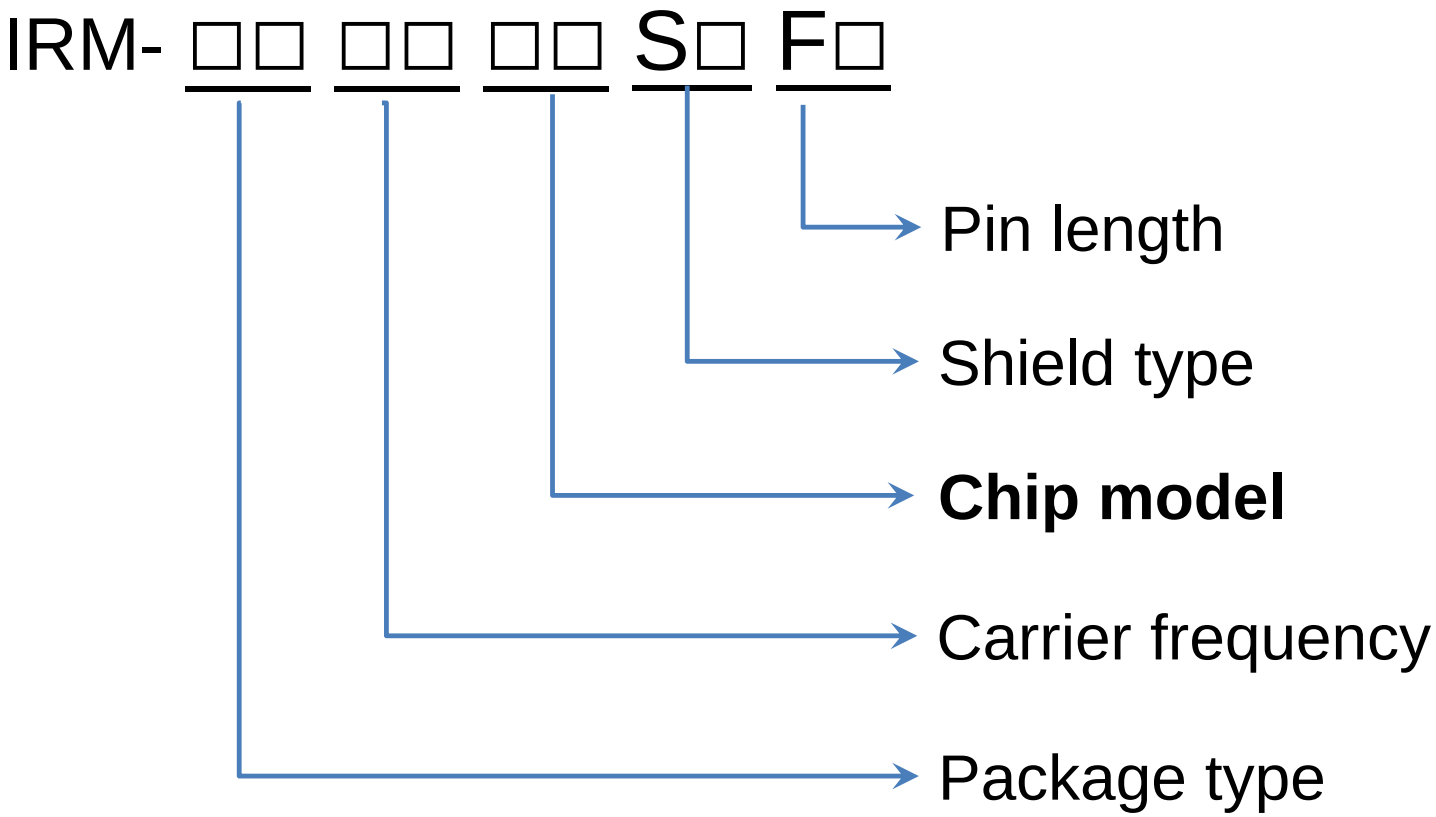
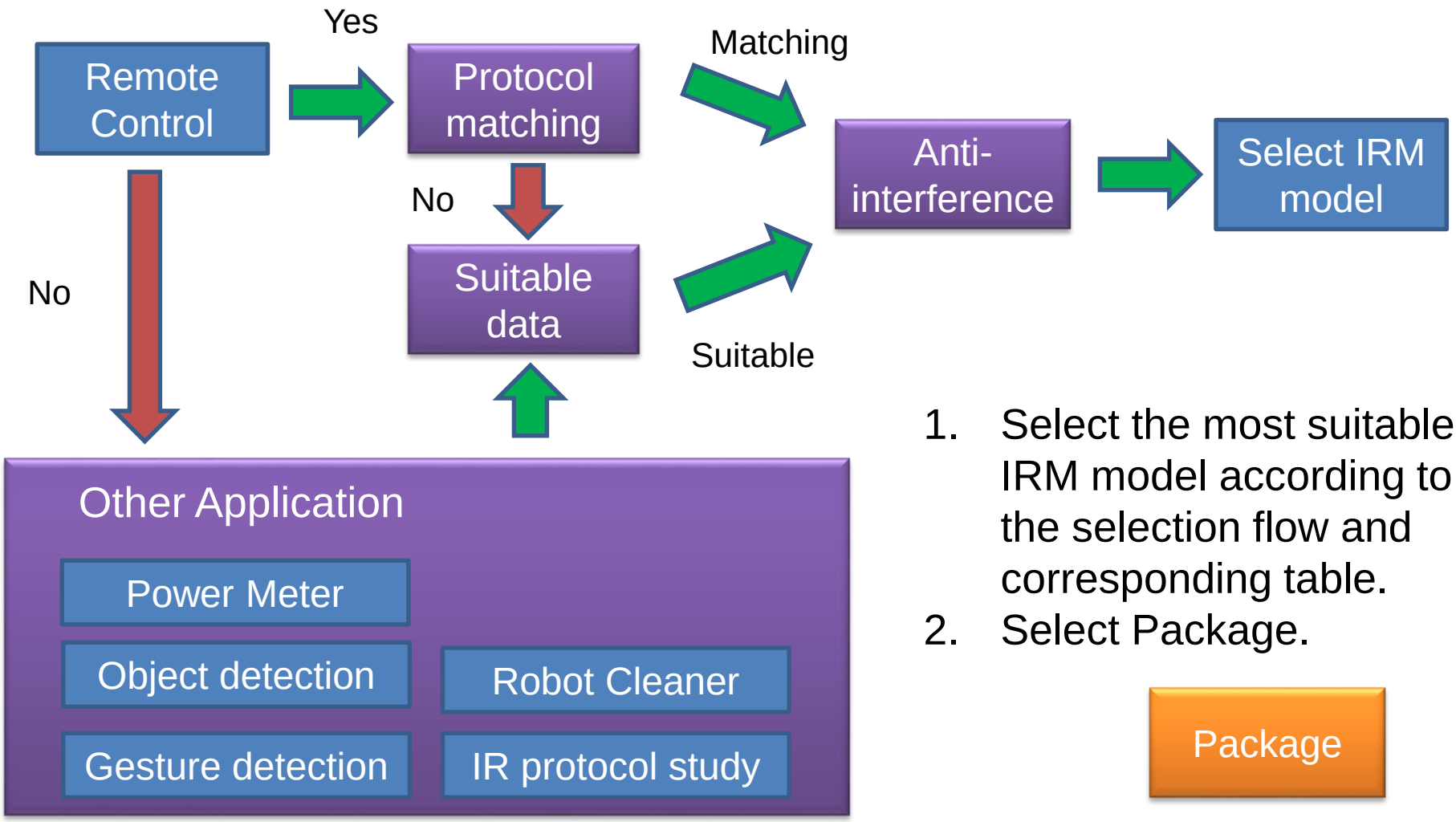
IRM Naming Rule



Chip Model Selection Flow



1. Select the most suitable IRM model according to the selection flow and corresponding table.
2. Select Package.

Package

Protocol matching (1/3)

Selection Flow

Protocol \ chip model	J	J2	J7	J8	J9
NEC	O	O	O	O	O
Toshiba	O	O	O	O	O
RCA	X	X	O	X	X
RC5 / RC6	O	O	O	O	O
Sony 12 Bit	O	O	O	O	X
Sony 15/20 Bit	X	O	O	X	X
Sharp	O	O	O	O	X
RCMM 1)	X	X	X	X	X
XMPX1 1)	X	X	X	X	X
RECS-80	X	O	X	X	X
Xiaomi (Mi)	X	X	O	X	X
Continuous Data (Condition)	X	X	O >0.8 x actual_Burst	X	X

O…suitable, X…not recommended

1) Due to tight decoding margin, issues might occur under short or far distance

Protocol matching (2/3)

Selection Flow

Protocol \ chip model	J10	J11	J12	J13	JF
NEC	O	O	O	O	O
Toshiba	O	O	O	O	O
RCA	O	O	O	O	O
RC5 / RC6	O	O	O	O	O
Sony 12 Bit	O	X	O	X	O
Sony 15/20 Bit	O	X	O	X	O
Sharp	O	O	X	O	O
RCMM 1)	X	X	X	X	X
XMPX1 1)	X	X	X	X	O
RECS-80	X	O	X	X	X
Xiaomi (Mi)	O	X	O	X	O
Continuous Data (Condition)	O >0.8 x actual_Burst	O Burst ≤ 700us	O >0.5 x actual_Burst	O Burst ≤ 700us	O **Unlimited**

O…suitable, X…not recommended

1) Due to tight decoding margin, issues might occur under short or far distance

Protocol matching (3/3)

Selection Flow

Protocol \ chip model	T	M	M2	M3	M6	X2	Z3
NEC	O	O	O	O	O	O	O
Toshiba	O	O	O	O	O	O	O
RCA	X	O	X	X	O	X	X
RC5 / RC6	O	O	O	O	O	O	O
Sony 12 Bit	O	O	O	O	O	O	O
Sony 15/20 Bit	X	X	O	X	O	X	X
Sharp	O	X	X	O	O	X	O
RCMM [1)]	X	X	X	X	X	X	X
XMPX1 [1)]	X	X	X	X	X	X	X
RECS-80	X	O	X	X	O	X	X
Xiaomi (Mi)	X	X	O	X	O	X	X
Continuous Data (Condition)	X	O Burst ≤ 500us	O Burst ≤ 1.2ms	X	X	X	X

O…suitable, X…not recommended

1) Due to tight decoding margin, issues might occur under short or far distance

Suitable data (1/2)

Selection Flow

	J	J2	J7	J8	J9
Min. burst time (**us**)	300	150	300	250	300
Min. gap time (**us**)	350	275	350	300	350
Min. pause time (**ms**)	25	9	1 (>0.8 x actual_Burst)	25	40

	J10	J11	J12	J13	JF
Min. burst time (**us**)	350	150	350	300	200
Min. gap time (**us**)	400	300	400	350	300
Min. pause time (**ms**)	1 (>0.8 x actual_Burst)	>0.3 (Burst ≤ 700us)	>0.83 (>0.5 x actual_Burst)	>0.35 (Burst ≤ 700us)	0

Suitable data (2/2)

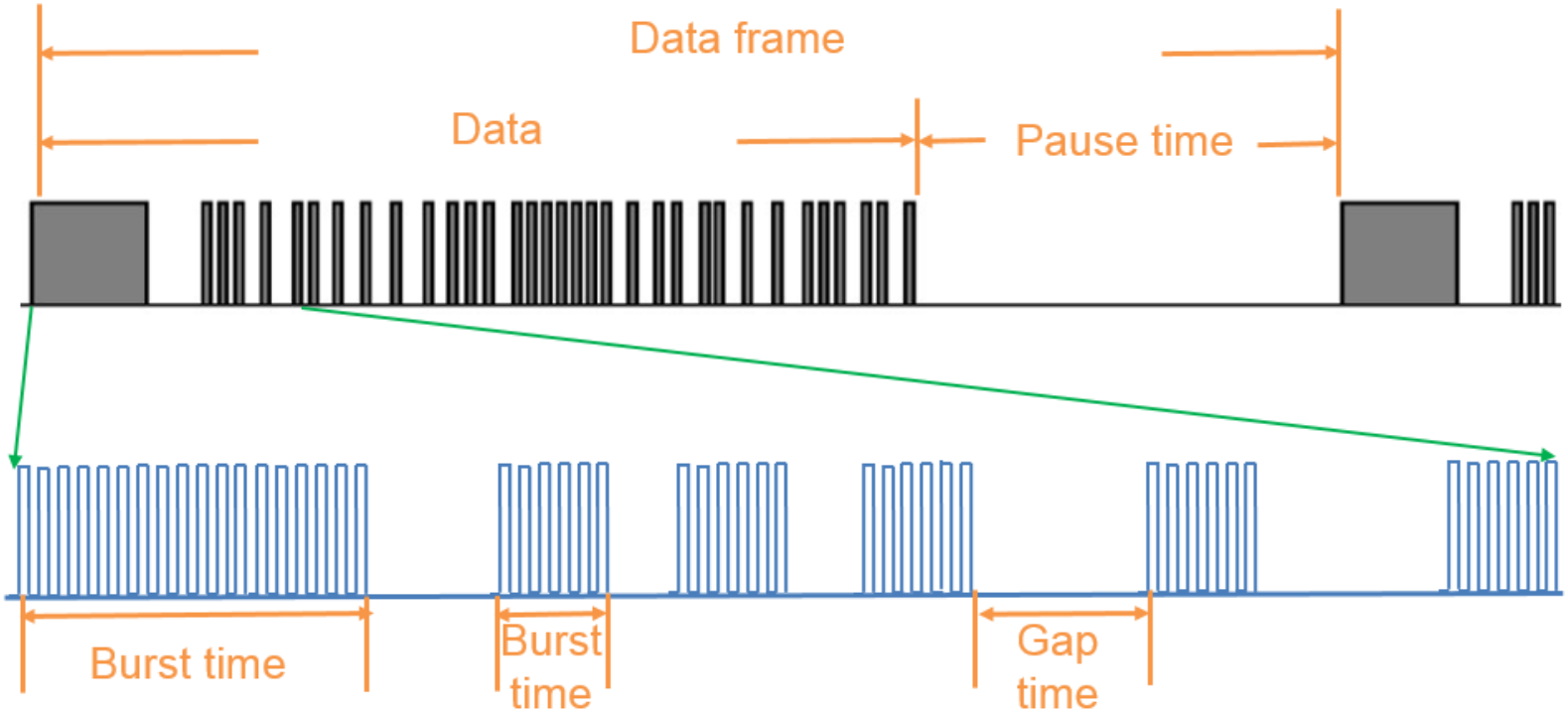
Selection Flow

	T	M	M2	M3	M6
Min. burst time (**us**)	265	160	265	210	160
Min. gap time (**us**)	370	265	370	320	265
Min. pause time (**ms**)	22	1 (Burst ≤ 500us)	1 (Burst ≤ 1.2ms)	22	30 (Burst ≤ 1.2ms)

	X2	X5	X6	Z3
Min. burst time (**us**)	340	150	280	265
Min. gap time (**us**)	450	150	350	265
Min. pause time (**ms**)	25	15	20	22

Selection Flow

Noun definition



For detailed instructions, please refer to the IRM application Note.

Anti-interference(1/2)

Selection Flow

interference	J	J2	J7	J8	J9
Incandescent	-	-	++	-	+
Fluorescent	+	+	+	+	+
Wifi	++	-	++	++	++
VCC Ripple	++	++	++	++	++

interference	J10	J11	J12	J13	JF
Incandescent	++	+	+	+	-
Fluorescent	+	+	++	++	+
Wifi	++	-	++	++	++
VCC Ripple	-	++	++	+	-

++ : Best suppression, + : suppression in most case , - : possibility of noise pulses

Anti-interference(2/2)

Selection Flow

interference	T	M	M2	M3	M6
Incandescent	+	-	+	-	++
Fluorescent	+	+	+	++	-
Wifi	+	++	++	+	-
VCC Ripple	++	-	-	+	-

interference	X2	Z3
Incandescent	+	++
Fluorescent	++	+
Wifi	++	-
VCC Ripple	-	-

++ : Best suppression, + : suppression in most case , - : possibility of noise pulses

Other Application

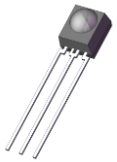
Selection Flow

Application	Chip model	Note
Power Meter (Continuous transmission)	J12, JF	JF: needn't Pause time J12 : High sensitivity
Object/Gesture detection	X, X2, J, JF	X2, J : Lower crosstalk X: Lower cost JF: Better consistency and needn't Pause time.
Robot Cleaner	J10, JF	JF: Better consistency.
IR protocol study	JW, JF	JW : Carrier wave output(without Demodulator) JF : With Demodulator

Package of IRM

Selection Flow

Dip



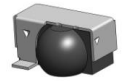
8.25 x 6.00 x 5.60

6.27x4.36x3.10

- IRM-**36xx / 37xx series**
  - IRM-36xx (Vout-GND-Vcc)
  - IRM-37xx (Vout-Vcc-GND)
- IRM-**66xx/67xx series**
  - IRM-66xx (Vout-GND-Vcc)
  - IRM-67xx (Vout-Vcc-GND)
- IRM-**86xx series**

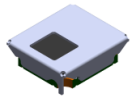
SMD

- IRM-V Series : **side view**
  - IRM-V3xx — 6.60 x 3.00 x 2.50
  - IRM-V5xx — 5.30x3.80x2.65

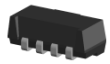


  - IRM-V8xx — 6.60x3.00x3.20

- IRM-H Series : **top view**
  - IRM-H2xx — 5.10x4.60x1.45



  - IRM-H3xx — 6.60x3.00x2.50



  - IRM-H5xx — 5.30x2.90x3.65

  - IRM-H6xx — 5.00x4.00x4.00

  - IRM-H8xx — 6.60x3.00x3.20

  - IRM-H9xx — 5.00x4.00x2.00