

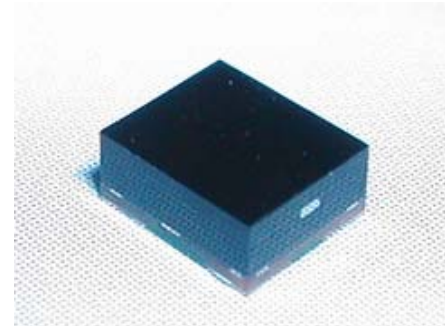
IR RECEIVER MODULE for Surface Mount Assembly

SMX38 consists of a PIN Photo diode of high speed and a preamplifier IC in one package.

Used as a receiver for Infrared remote control systems

Features

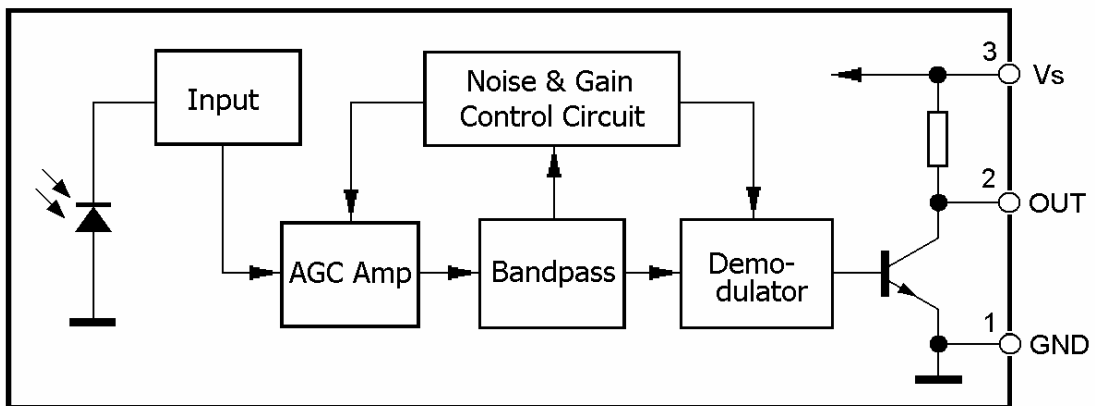
- Small size SMD package
- Wide supply-voltage range : 4.5V to 5.5V
- Shielded against electrical field disturbance
- High immunity against ambient light disturbances
- TTL and CMOS compatible
- Available for various carrier frequencies



Applications

- AV equipments (TV, Audio, DVDP, CDP)
- Car Stereo & GPS
- Notebook computer, Camcorder
- Toys & Remote Control Equipments

Functional Block Diagram



Available for carrier frequencies between 36KHz to 56KHz

Type number	Center Frequency (kHz)	Type number	Center Frequency (kHz)
SMX38	37.9	SMX36	36.7
SMX40	40.0	SMX56	56

Maximum Ratings

Ta=25°C , Vcc=5.0V (Vcc=3.0V)

Parameter	Test conditions	Symbol	Ratings	Unit
Supply Voltage		Vmax	6.0	V
Supply current		I _{max}	5	mA
Operating Temperature	25°C	T _{opr}	-25~ +70	°C
Storage Temperature		T _{stg}	-30 ~ +105	°C
Soldering Temperature	Max 5 sec. reflow	T _{sol}	260	°C

Recommended operating condition

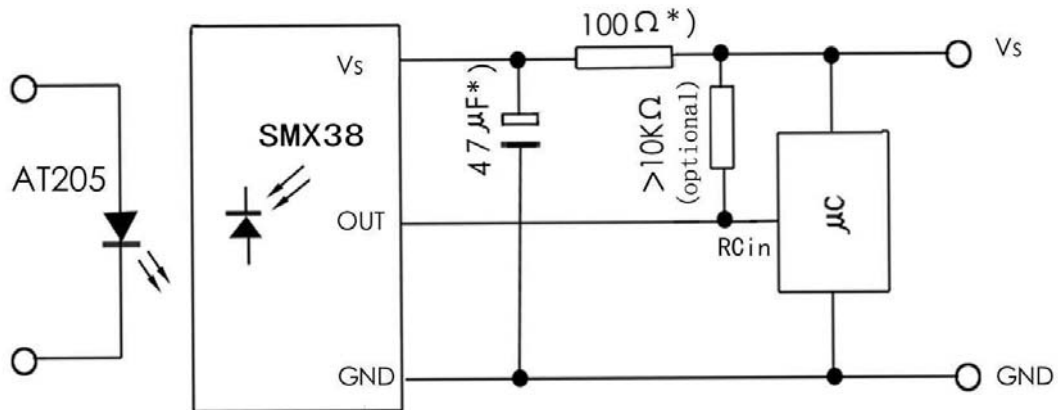
Parameter	Condition	Symbol	Min	Typ.	Max.	Unit
Operating Supply Voltage		V _s	4.5	5.0	5.5	V
Current Consumption	Input = 0	I _s	0.5	1.0	2.0	mA

Electro-Optical Characteristics

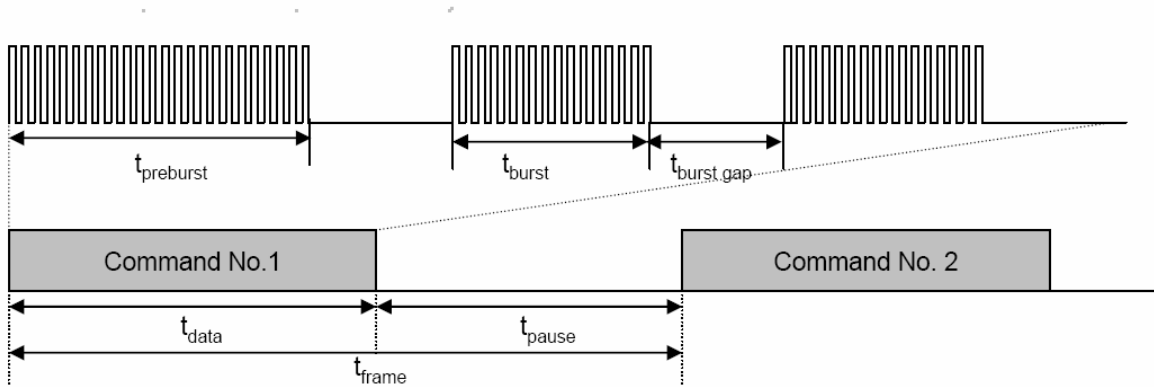
Ta=25°C

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Test Voltage		V _s		5.0		V
Current Consumption	No signal input	I _s	0.5	1.0	1.7	mA
High level Output voltage		V _{OH}	V _s - 0.25			V
Low level Output voltage	(Active Low)	V _{OL}	-	0.2	0.4	V
Peak Wavelength		λ _p	765	940	1150	nm
Transmission Distance	at the ray axis = 0 ° environ intensity at 50 Lx	L	12	18		m
Low level Output Pulse Width	Input pulse Burst = 600μS, Period = 1.2ms	T _{WL}	500	600	800	μS
B.P.F Center Frequency	For SMX38	f _o	36.5	37.9	39.3	kHz

Applications Circuit



Suitable Data Format



	Operation Voltage	Minimum Burst Length T_{burst}	Minimum Burst Gap time $T_{burst-gap}$	Minimum data Pause time
SMX38	5V	10 pulse	14 pulse	>4 times t_{burst}

Typical Characteristics

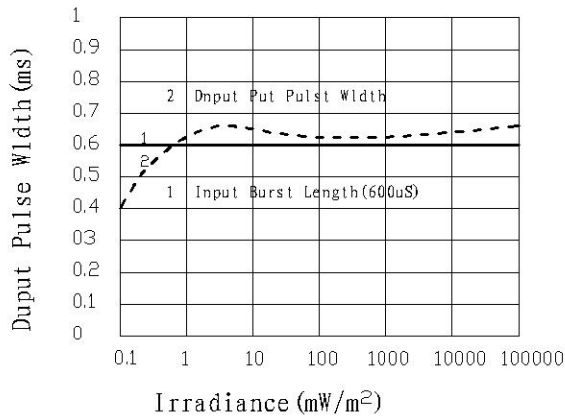


Figure 1. Pulse Length and Sensitivity in Dark Ambient

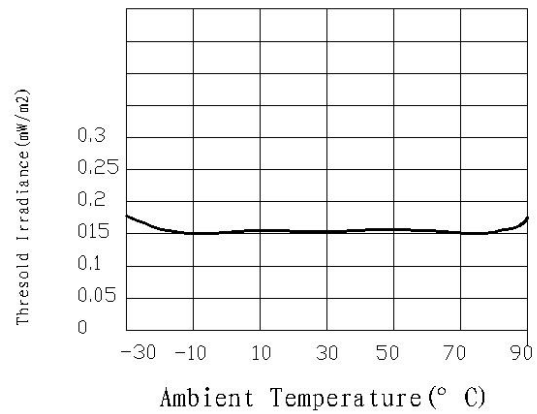


Figure 2. Sensitivity VS. Ambient Temperature

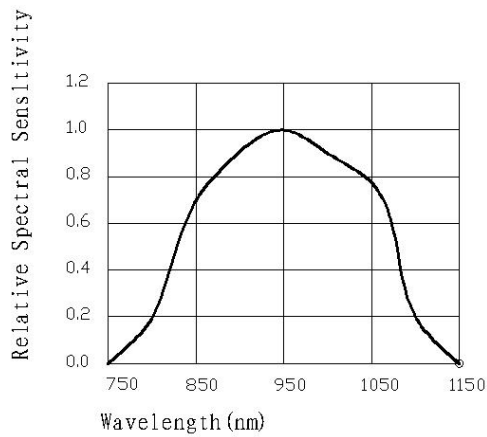


Figure 3. Relative Spectral Sensitivity VS. Wavelength

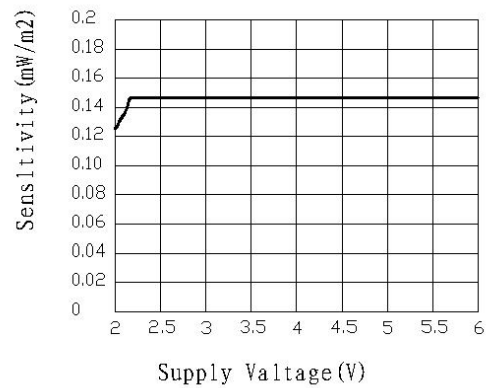


Figure 4. Sensitivity VS. Supply Valage

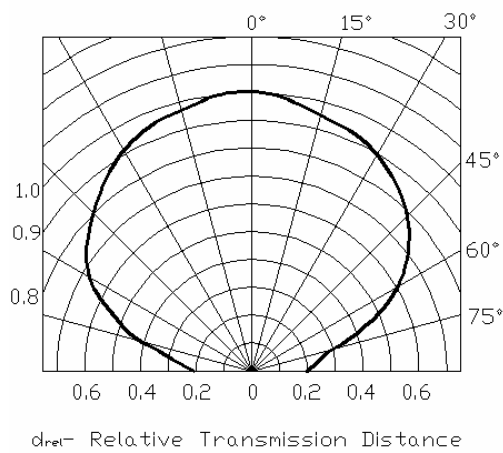


Figure 5. Vertical Directivity ϕ_x

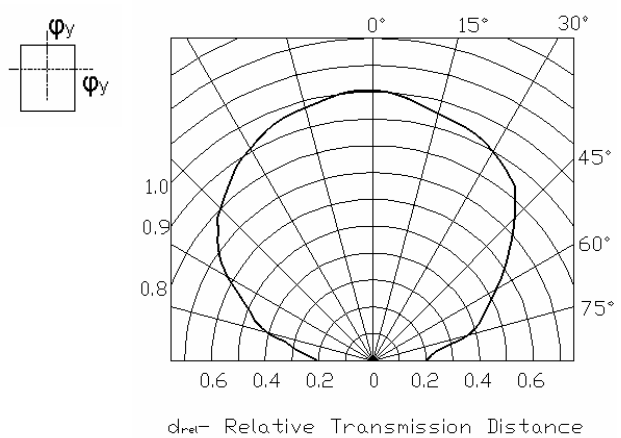
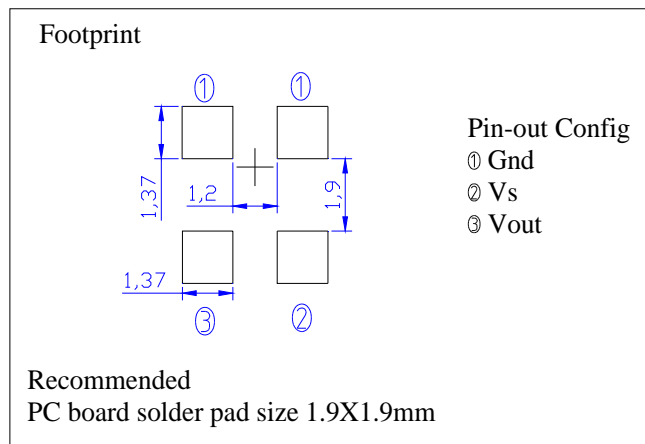
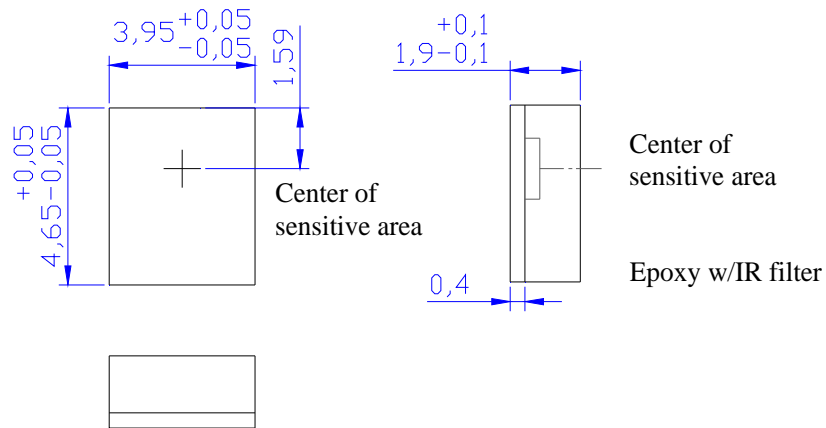


Figure 6. Vertical Directivity ϕ_y

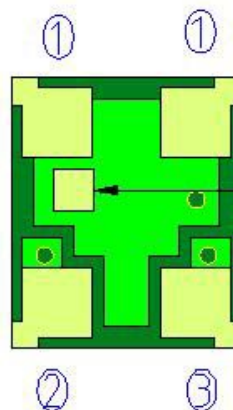
Dimensions in mm



Package View & ID



Front View



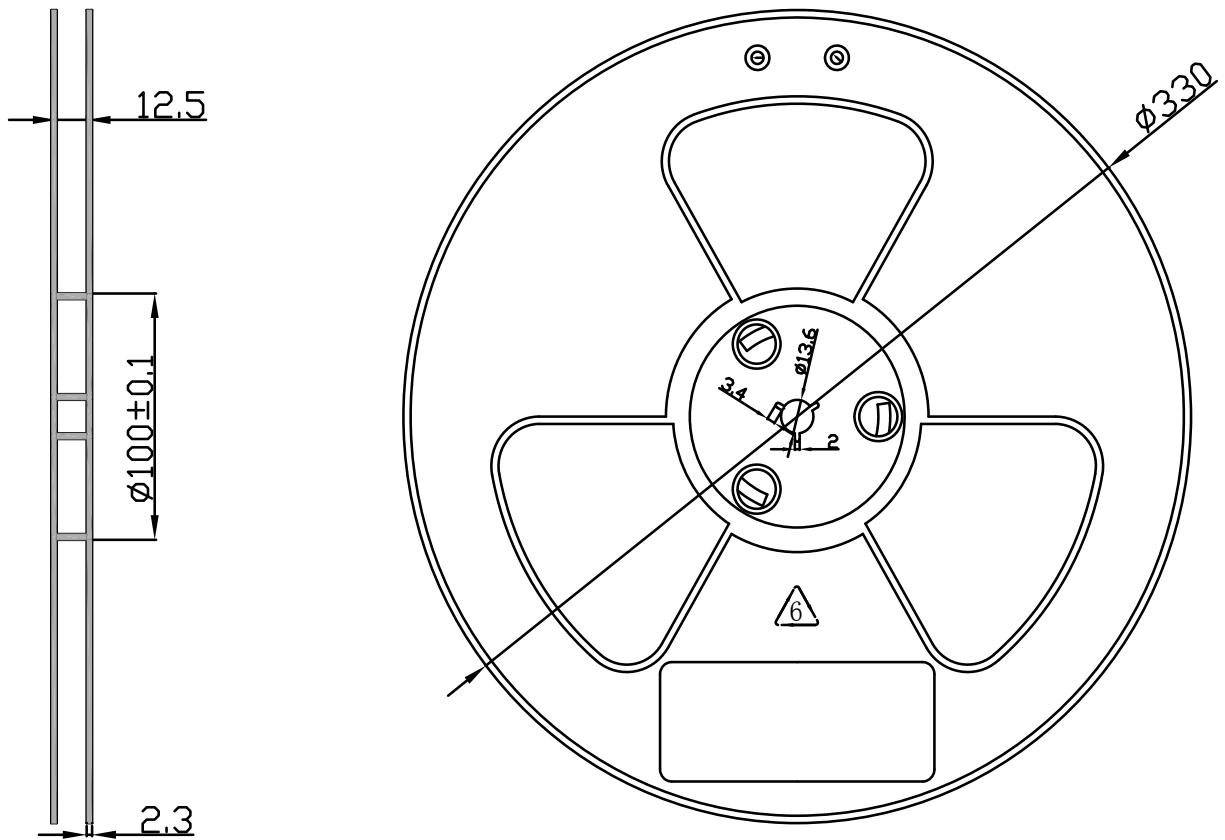
Bottom View

Indicator for machine visual recognition

Markings
 X38=Model SMX38

Taping Specifications

(1) Shape and dimensions of reels: unit in mm



(2) Dimensions of tape

