

# Product Guide Presentation

2015. Aug



# *Product Overview*

- *Automotive*
- *Power management*
- *LED Lighting & Display Driver*
- *Interface*
- *Analog & Mixed Signal*
- *Standard Logic*

# *Product Line up*

## ✓ Automotive

- Motor Drivers
- Voltage Regulators (LDO)
- Communication  
(LIN : Local Interconnect Network)  
(CAN : Controller Area Network)

## ✓ Analog and mixed signal

- OP Amp & Comparators
- Fire Detectors
- Telephone ICs
- Audio Systems & Melody ICs
- Timers & Real Time Clock ICs

## ✓ Power management

- Ground fault interrupter
- Motor controller
- Power factor controller
- Transistor Array ICs
- DC-DC Converter
- Voltage Regulators (LDO)
- Voltage Detector & Reset ICs

## ✓ Display driver

- LED Display drivers
- LED Lighting Driver (CCR)

## ✓ Interface & Standard Logic

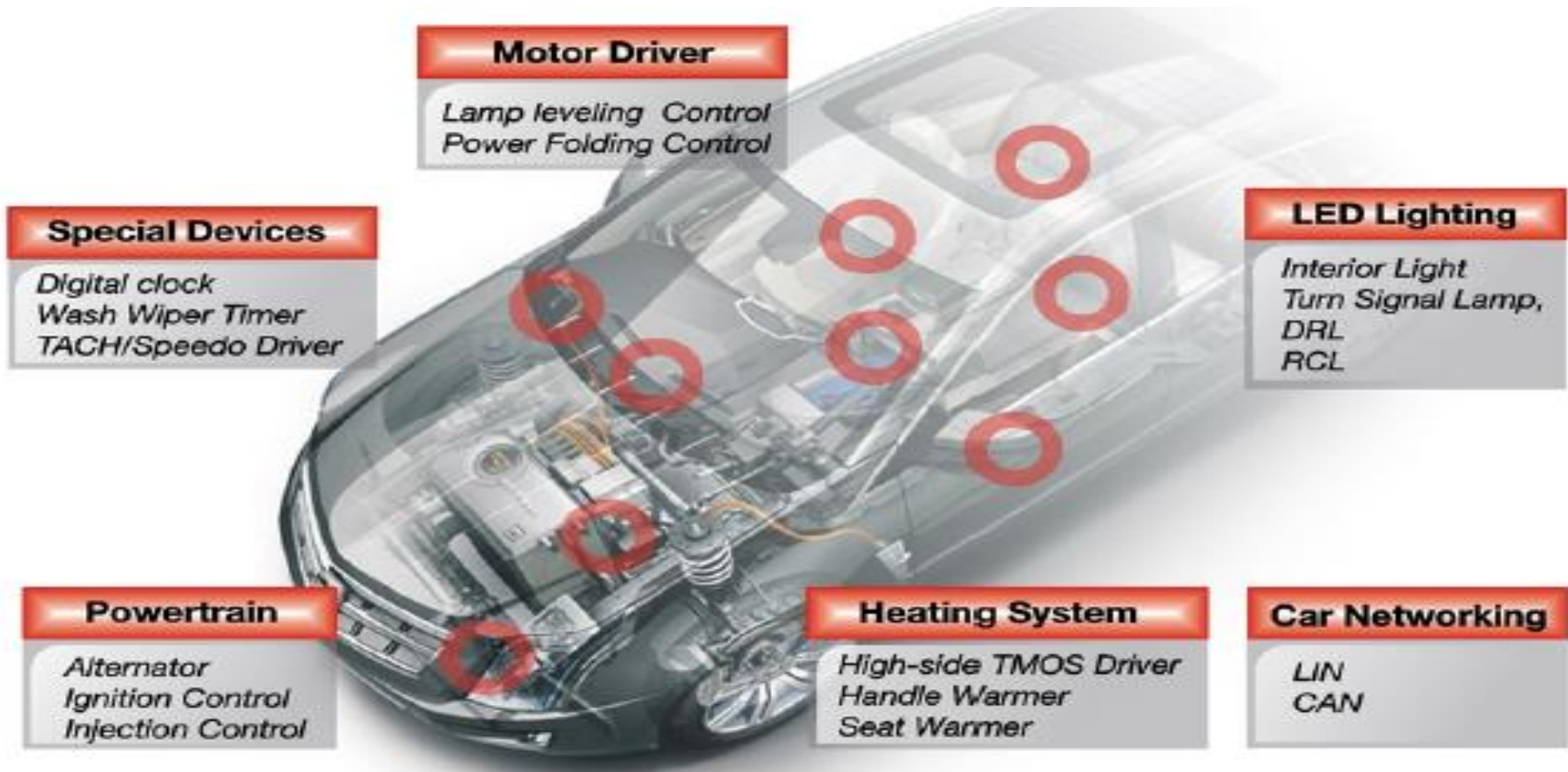
- RS-232, RS-485, UART

# *Automotive product*



# ■ *Automotive product*

## *Driving the Future of Automotive Electronics*



# ■ *Automotive product*

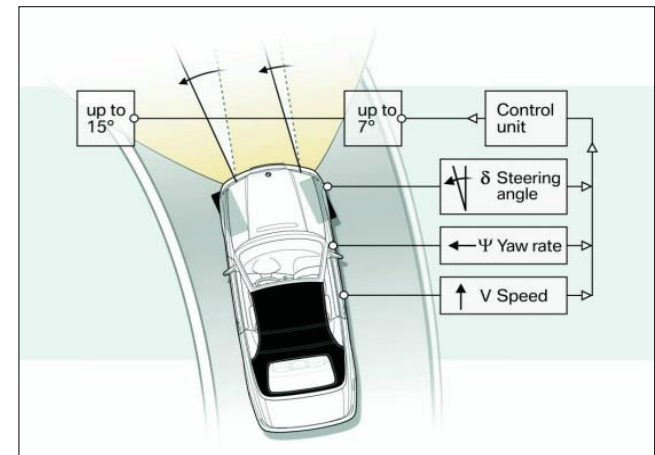
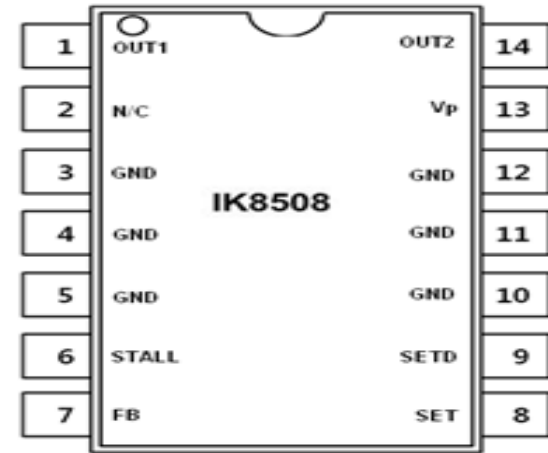
Application	Product	Function	Package	Compatibility	Remark
Motor Driver	IL33091AN/AD	High-side TMOS Driver	SOP / DIP – 8	MC33091A	Mass Production
	IK8508D	Head Lamp Leveling Drive	PDSOP - 14	TDA3629	Mass Production
	IK8509QN	Power Folding for Side Mirror	QFN - 16	Own	Mass Production
Communication	IL33290D	ISO K Line Serial Link Interface	SOP - 8	MC33290	Mass Production
	ILA82C251D	CAN Transceiver for 24V Systems	SOP - 8	PCA82C251	Mass Production
	<b>IK8301D</b>	<b>CAN Transceiver for 12V Systems</b>	<b>SOP - 14</b>	<b>TJA1-XX</b>	<b>Under Development</b>
	<b>IK8302D</b>	<b>LIN Transceiver for 12V Systems</b>	<b>SOP - 8</b>	<b>TJA10XX</b>	<b>Under Development</b>
Digital Clock	IN7100N / MQ	CMOS Automotive Digital Clock Circuit	DIP – 40 MQFP - 44	S5G5127B	Mass Production

# ■ *Automotive product*

## ✓ *IK8508 (Motor Driver for Light Leveling)*

### ○ Features

- Low positional error
- Low noise sensitivity due to hysteresis
- Low supply current
- Over temperature protection
- Over and under voltage lockout
- Internal clamp diodes
- Hysteresis level set externally
- AEC Q100 Qualified



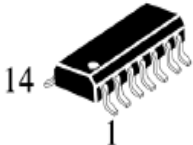
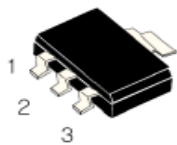
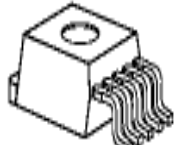
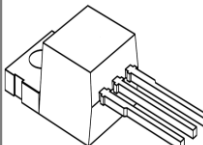
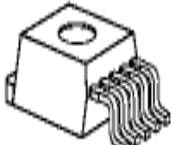
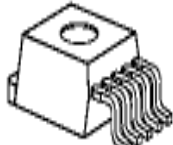
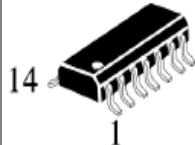
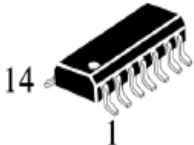
# ■ *Automotive product*

Application	Product	Function	Package	Compatibility	Remark
LDO	<b>ILE4263-2G</b>	<b>Low-Drop voltage regulator 5V, 100mA</b>	<b>PDSOP - 14</b>	<b>TLE4263 – 2G</b>	<b>Under Development</b>
	ILE4264–2G	Low-Drop voltage regulator 5V, 100mA	SOT - 223	TLE4264-2G	Mass Production
	ILE4270D2T	Low-Drop voltage regulator 5V, 550mA	TO-263-5	TLE4270G/S	Mass Production
	ILE4274	Low-Drop voltage regulator 5V, 400mA 8.5V, 400mA 10V, 400mA	TO-263-5 TO-262-5	TLE4274	Mass Production
	ILE4275D2T	Low-Drop voltage regulator 5V, 400mA	TO-263-5 TO-252-5	TLE4275	Mass Production
	ILE4276D2T	Low-Drop voltage regulator 5V, 8.5V,12V, ADJ / 400mA	TO-263-5 TO-252-5	TLE4276	Mass Production
	ILE4278D	Low-Drop voltage regulator 5V, 100mA	PDSOP - 14	TLE4278	Mass Production
	ILE4278AD	Low-Drop voltage regulator 5V, 200mA	PDSOP - 14	TLE4279	Mass Production
	<b>ILE4279-4G</b>	<b>Low-Drop voltage regulator 5V, 100mA</b>	<b>PDSOP - 14</b>	<b>TLE42794</b>	<b>Under Development</b>



# ■ Automotive product

## ✓ LDO (Low Dropout) product characteristics

구분	ILE4263-2	ILE4264-2	ILE4270	ILE4274	ILE4275	ILE4276	ILE4278	ILE4279-4
PKG Type	14PDSOP	SOT 223	TO 263-5	TO 220AB/3	TO 263-5 TO 252-5	TO 263-5 TO 252-5	14PDSOP	14PDSOP
입력전압 (V)	6~45	6~45	6~40	5.7~40	6~45	6~40	6~45	6~45
출력전압 (V)	5	5	5	5, 8.5, 10	5	5 / 8 / 12 ADJ	5	5
Drop 전압 (V)	<0,5	<0,5	<0,7	<0.5	<0,5	<0,5	<0,5	<0,5
Tolerance (%)	2	3	2	4	2	4	2 or 4	2
출력전류 (mA)	200	100	550	400	400	400	200	150
Over temp protection	yes	yes	yes	yes	yes	yes	yes	yes
Short circuit protection	yes	yes	yes	-	yes	yes	yes	yes
AEC Q100	-	yes	-	-	-	-	yes	-
PKG Outline								

# ■ *Automotive product*

## ✓ *LDO (Low Drop Out) product function*

Function	ILE4263-2	ILE4264-2	ILE4270	ILE4274	ILE4275	ILE4276	ILE4278	ILE4279-4
<b>Input Voltage</b> block to ground directly on the IC with a capacitor.	y	y	y	y	y	y	y	y
<b>Output Voltage</b> block to ground with a capacitor	y	y	y	y	y	y	y	y
<b>Reset Output</b> open-collector Output; pull-up to IC Output via a resistor	y		y		y		y	y
<b>Rest delay</b> connected to GND with a capacitor	y		y		y		y	y
<b>Watchdog Input</b> rising edge-triggered input for monitoring a MCU	y						y	
<b>Watchdog Output</b> the open collector Output; pull-up to IC Output via a resistor							y	
<b>Watchdog Adjust;</b> an external resistor to GND determines the watchdog activating threshold							y	
<b>Reset Switching Threshold Adjust;</b> for setting the switching threshold, connect a voltage divider from output to ground. If this input is connected to ground, the reset is triggered at the internal threshold.					y		y	y
<b>Inhibit</b> TTL-compatible, low-active input.	y					y		
Sense input / output								y

# ■ *Automotive product*

Application	Product	Function	Package	Compatibility	Remark
Automotive ICs	IL33193N/D	Automotive Direction indicator Rs=20mW	DIP / SOP - 8	MC33193	Mass Production
	IL33193-03N/D	Automotive Direction indicator Rs=30mW	DIP / SOP - 8	U643B	Mass Production
	IL33197AN/AD	Automotive Wash Wiper Timer	DIP / SOP - 8	MC33197A	Mass Production
	IK642BN/BD	Interval and Wiper Wash Wiper Control IC	DIP / SOP - 8	U642B	Mass Production
	IL8190ND	Precision Air core Touch / speed driver	DIP – 16 SOP - 20	CS8190ENF16	Mass Production
	<b>IK8001</b>	<b>Alternator Regulator with RVC protocol</b>	<b>Chip</b>	<b>ASIC</b>	<b>Under Development</b>
	<b>IK8010</b>	<b>HID Lamp Driver</b>	<b>QFN - 48</b>	<b>ASIC</b>	<b>Under Development</b>

# ■ *Automotive product*

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## ✓ *IL33193 (Automotive Direction Indicator)*

### ○ Features

- Pin compatible with the UAA1041
- Defective Lamp Detection Threshold
- RF Filter for EMI Purpose
- Load Dump Protection
- Dual battery Capability for Jump Star
- AEC Q100 Qualified



# ■ *Automotive product*

## ✓ *IK642B (WIPER / WASH WIPER CONTROL IC)*

### ○ Features

- Interval pause – 4s to 20s
- After wiping Time – 2s to 20s
- Wiper Motor's Park Switch
- One External capacitor Determines All Time sequences
- Relay Driver with Z-diode
- Load dump protected
- Interference protection according to VDE 0893 or ISO/TR 7637/1
- AEC Q100 Qualified



# *LED Lighting & Driver*



# ■ LED Lighting

Application	Product	Function	Package	Compatibility	Remark
LED Lighting	IK2802D	Constant current LED Driver (2ch)	SOP - 8	MBI1802	Mass Production
	IK2804D	Constant current LED Driver (4ch)	SOP - 8	MBI1804	Mass Production
	IK2816TSD	Constant current LED Driver (16ch)	TSSOP - 20	MBI1816	Mass Production
	IL9910D	Universal High Brightness LED Driver	SOP - 8	HV9910	Mass Production
	IL9961	High stability LED Driver	SOP - 8	HV9961	Mass Production
	IL9921 / 22 / 23	3pin Switch mode LED Lamp Driver with Build-in MOSFET	TO-92/SOT-92	HV9921/22/33	Mass Production
	IK402U	Contact current Linear LED Driver	SOT-223	BCR402U	Mass Production
	IK2306PT	Switch mode LED Driver – 60mA	SOT-89	OWN	Mass Production
	IK2312(IL33120)	High voltage LED Driver With Build-in MOSFET	TO-252-3L	OWN	Mass Production
	IK3004	Current Limit IC – 22mA	Chips	ASIC	Mass Production

# ■ LED Lighting

## ✓ LED Lighting product characteristics

Feature	IK2312	IL9910	IL9961	IK2306	IK280x	IK402U
Function	MOS FET Switch LED Driver	Universal High Voltage LED Driver	Universal High Voltage LED Driver	MOS FET Switch LED Driver	Constant current LED Driver	Linear LED Driver
Maximum supply DC Voltage	400V	450V	450V	400V	30V	40V
Output Current	120mA, fixed	Up to >1A adjustable by external resistor	Up to >1A adjustable by external resistor	50mA, fixed	20 ~ 360mA per channel adjustable by external resistor	22 ~ 65mA adjustable by external resistor
Power Dissipation	TO-252-3L	630mW for SOP-8	630mW for SOP-8	740mW / TO-92 1600mW / SOT-89	800mW	SOT-23-5
Thermal protection	Yes	No	No	No	Yes	Negative Thermal Coefficient
Short circuit protection	Yes	No	Yes	No	No	No
Dimming	No dimming	ANALOG / PWM	ANALOG / PWM	No dimming	ANALOG / PWM	No dimming
Compatibility	OWN	HV9910	HV9961	HV9922	MBI1804	BCR402U



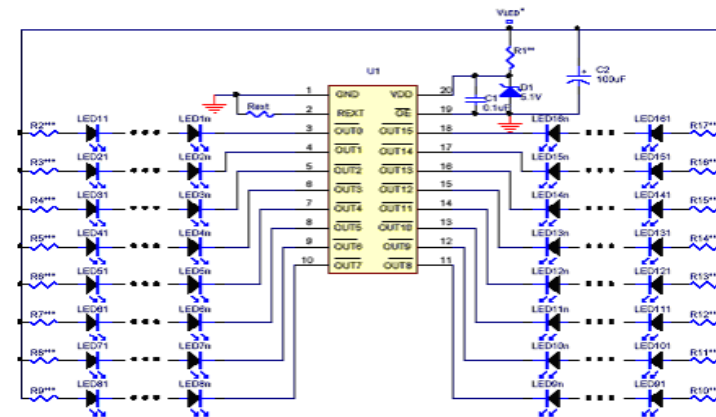
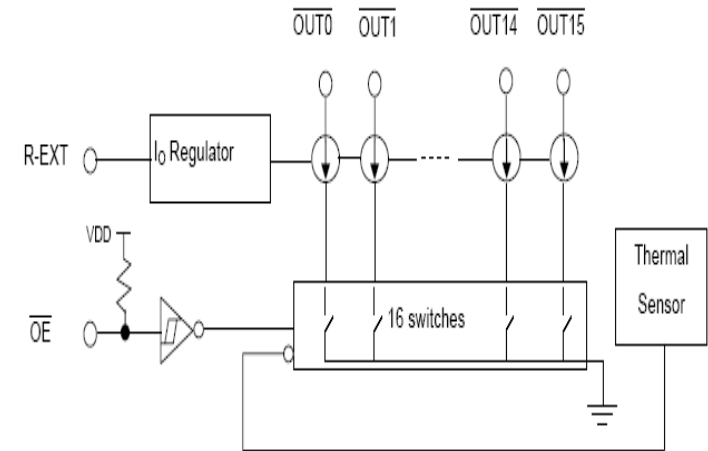
# ■ LED Lighting

## ✓ *IK28xx (Constant current LED Driver)*

### ○ Features

- Constant current output channel
- Constant output current invariant to load voltage change
- Thermal protection and flag
- Output current adjusted through an external resistor

Characteristic		IK2802	IK2804	IK2816
Constant-Current Output Channels		2	4	16
Maximum output constant current per channel		360mA	240mA	60mA
Excellent output current accuracy	Between Channels (Max)	<±3%	<±3%	<±3%
	Between Ics (Max)	<±6%	<±6%	<±6%

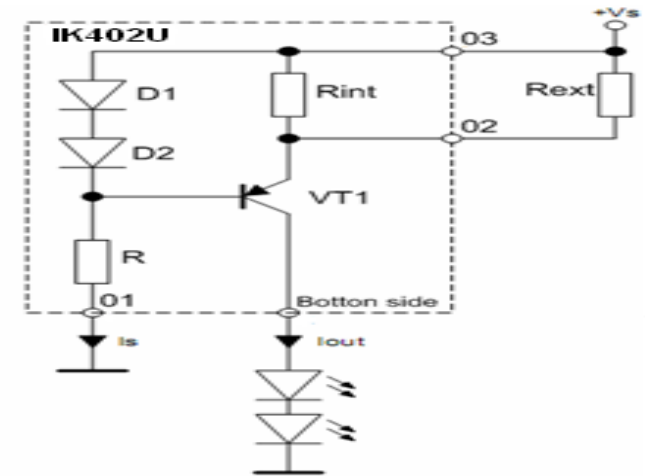


# ■ *LED Lighting*

## ✓ *IK402U (CONSTANT CURRENT LINER LED DRIVER)*

### ○ Features

- Supplies stable bias current even at low battery voltage
- Ideal for stabilizing bias current of LED's
- Negative temperature coefficient protects LED's against thermal overload
- Output current is adjusted by external resistance



# ■ LED Display Driver

Application	Product	Function	Package	Compatibility	Remark
LED Driver	IK2102DW	LED Driver with Key scan function 4digits X 13segments to 7digits X10segments	SOP - 28	OWN	Mass Production
	IK2107DW	LED Displays Driver IC 12/9segment output, 7 to 4grid output	SOP - 24	OWN	Mass Production
	IK2108DW	LED Driver with Key scan function 8columns X 14rows to 12columns X 10rows	SOP - 32	OWN	Mass Production
	IK6207TQ	LED Driver with Key scan function 4digits X 13segments to 7digits X10segments	TQFP - 48	OWN	Mass Production
	IK6208TQ	LED Driver IC 8digits X 14segments	TQFP - 48	OWN	Mass Production
	IK6486N/PL/MQ	33output LED Driver	DIP-40 PLCC-44 MQFP-44	GM6486	Mass Production
	KL7107N	3 ½ Digit LED Display, A/D Converter	DIP-40	IC7107	Mass Production

# ■ *LED Display Driver*

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## ✓ *IK2102 (LED Driver with Key Scan Function)*

### ○ Features

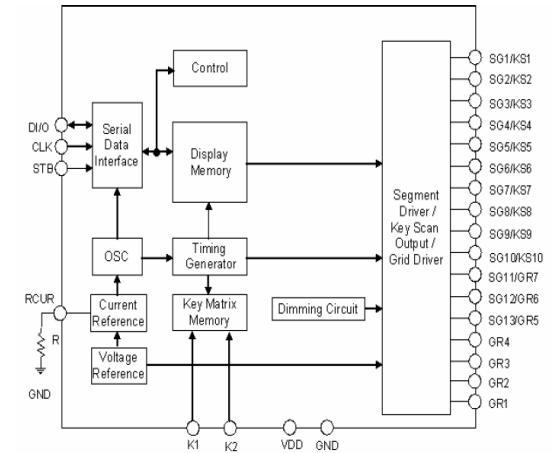
- Wide operation voltage range : 3.0V ~ 5.5V
- Display size  
Scan (Common Cathode) : 4digits X 13segments  
7digits X 10segments
- 8 step Dimming circuitry
- Pulse segment current  
Type 10mA (8mA ~ 12mA) @ VDD = 3.3V ~ 5.5V  
Type 20mA (16mA ~ 24mA) @ VDD = 5.5V
- Key scanning : 10 \* 2 matrix
- Serial Interface

# ■ *LED Display Driver*

## ✓ *IK2108 (LED Display Driver IC)*

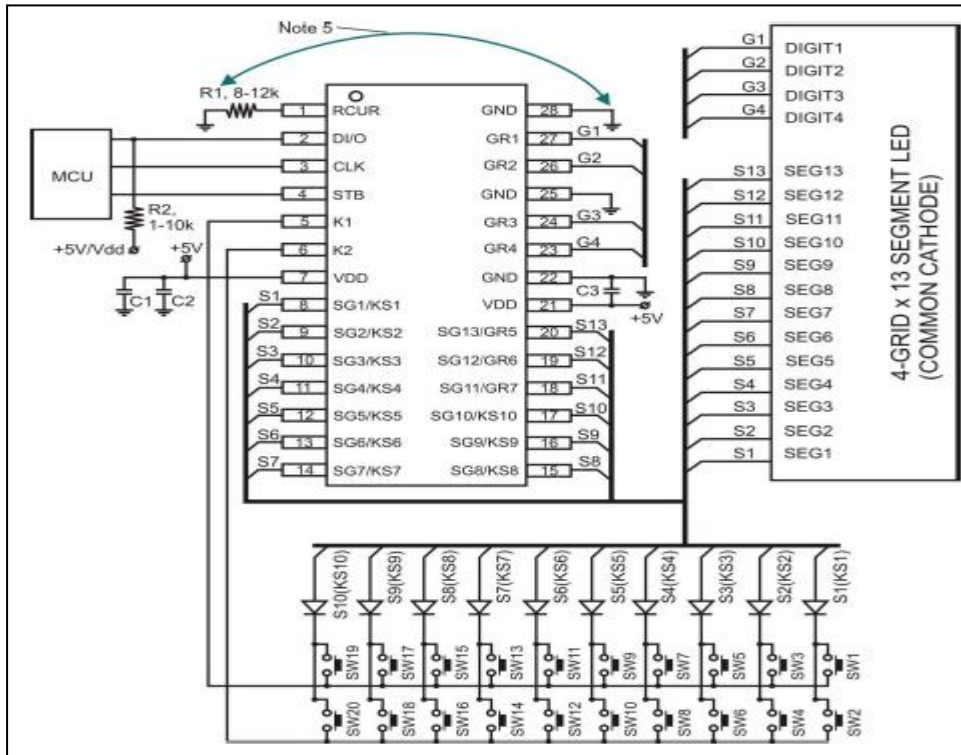
### ○ Features

- Operation voltage for digital : 3.0V ~ 5.5V
- Operation voltage for LED's : 5.0V ~ 18V
- 7-step individual dimming control for each grid
- Pulse segment current  
27mA @ 8digits X 14segments  
39mA @ 12digits X 10segments
- Key scanning : 10 X 3 matrix
- Serial interface
- Operation temperature : -40°C ~ 85°C

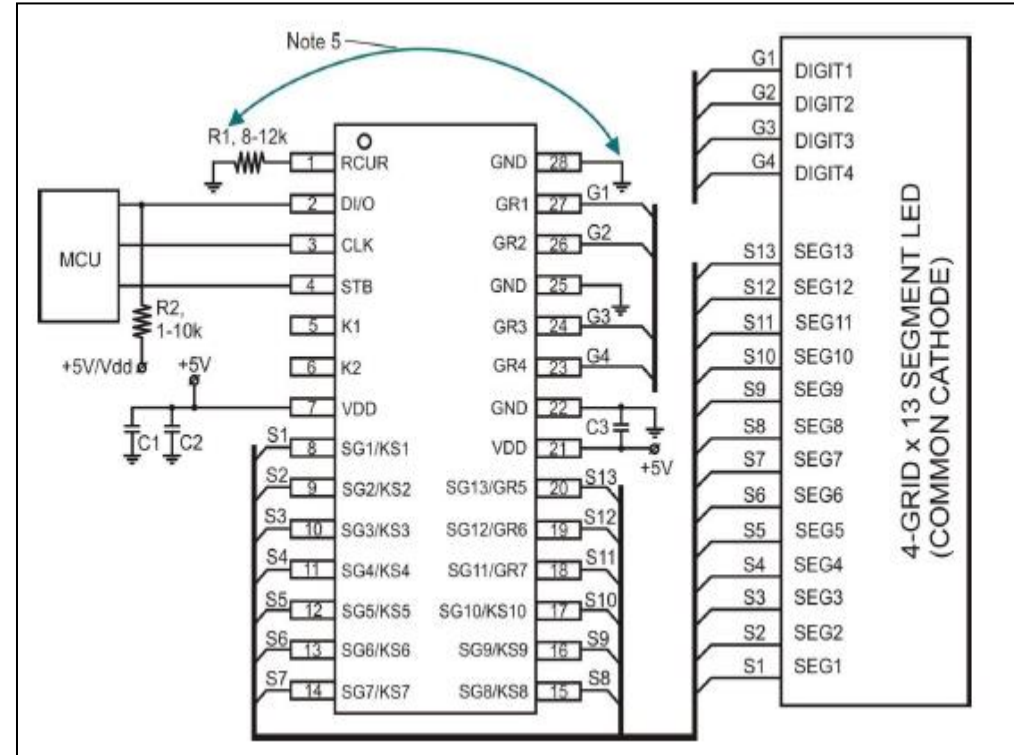


# LED Display Driver

## ✓ *IK2102 / IK2108 Application circuit*



Key scan with Diodes



Without Key scan function

# ■ *LED Display Driver*

## ✓ *IK6208 (LED Display Driver IC)*

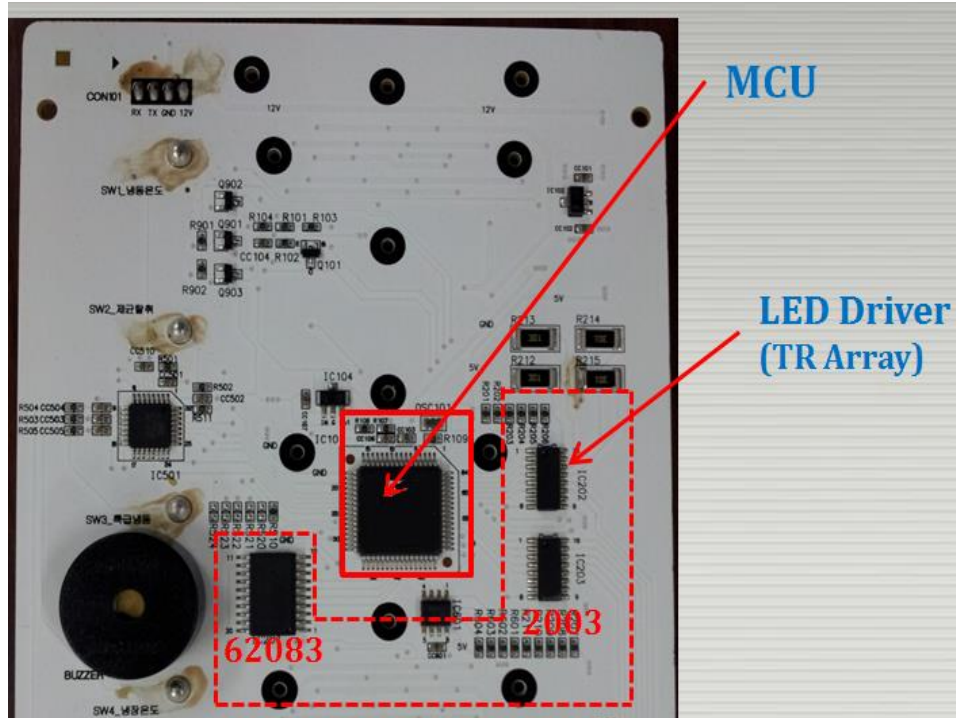
### ○ Features

- Operation voltage for digital : 3.0V ~ 5.5V
- Operation voltage for LED's : 5.0V ~ 18V
- 7-step individual dimming control for each grid
- Pulse segment current  
27mA ~ 39mA @ 8digits X 9segments
- Key scanning : 7 X 2 matrix
- Integrated MCU (8kb OTP / Flash, 756byte RAM)
- Serial interface (UART) up to 57,600bps
- 2 channel PWM (Pulse Width Modulation)
- Operation temperature : -40°C ~ 85°C

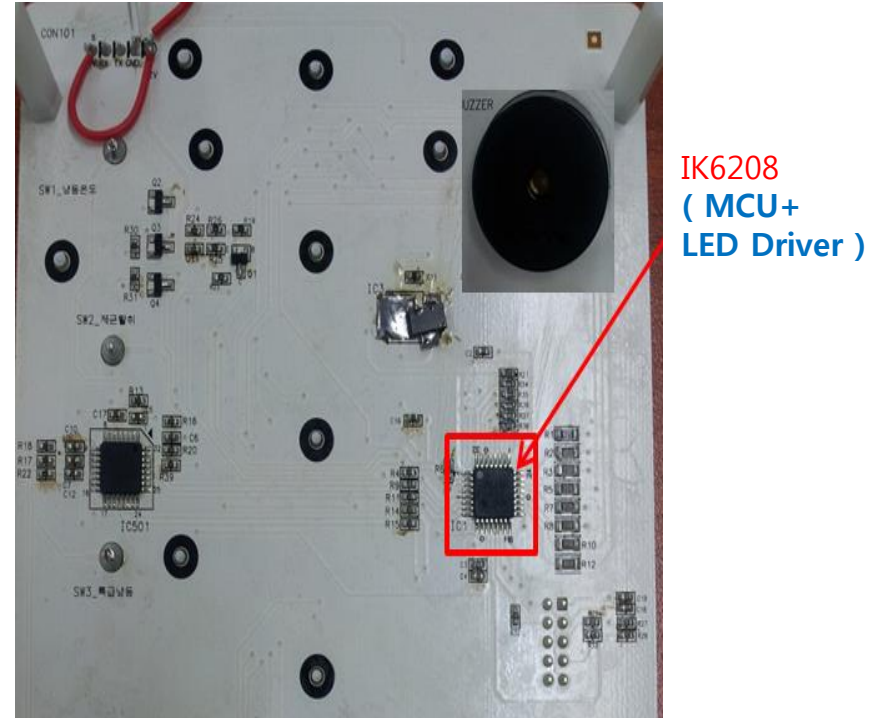


# ■ LED Display Driver

## ✓ IK6208 (LED Display Driver IC) Application



Current Solution (MCU + TR Array)



IK New Solution (IK6208)



# *Power Management*



# ■ Power Management

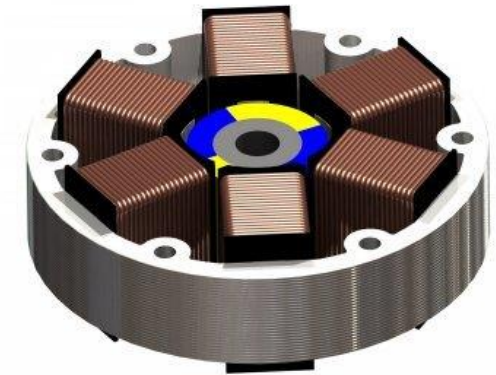
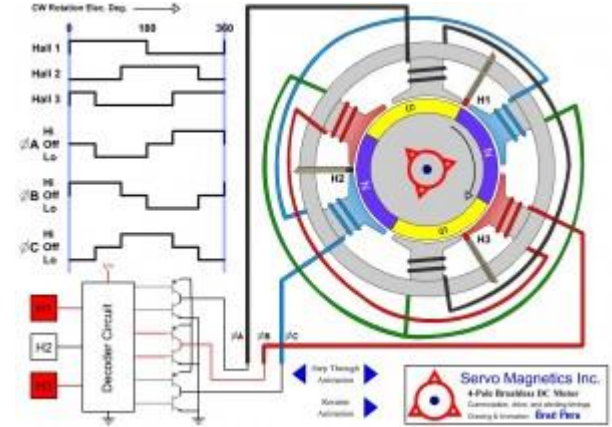
Application	Product	Function	Package	Compatibility	Remark
Ground Fault Interrupter	IL7101N/D	Earth Leakage Current Detector	SOP / DIP – 8	GL7101 KA2803	Mass Production
	IK7102N/D	Earth Leakage Current Detector	SOP / DIP – 8	OWN	Mass Production
	IK7104N/D	EMI Enhanced Ground Fault Interrupters	SOP / DIP – 8	OWN	Mass Production
	IL54123N/D	Earth Leakage Current Detector	SOP / DIP – 8	OWN	Mass Production
	IL4145N/AD	Low Power Ground Fault Interrupters	SOP / DIP – 8	RV4145A	Mass Production
Motor Controller	IL33035N/DW	Brushless DC Motor Controller	SOP / DIP-24	MC33035	Mass Production
	IK6501SD	3 Phase Full wave sine-wave PWM Brushless Motor Controller	SSOP - 24	TB6551	Mass Production
	IK6019AD	High voltage High current stepper motor Driver	SOP - 16	OWN	Mass Production
	IL33091AN/AD	High-side TMOS Driver	SOP / DIP – 8	MC33091A	Mass Production

# ■ *Power Management*

## ✓ *IK6501 (3 Phase PWM Brushless Motor controller)*

### ○ Features

- Sine wave PWM control
- Built-in triangular wave generator
- Built-in lead angle control function
- Built-in dead time function
- Support bootstrap circuit
- Overcurrent protection signal input pin
- Operation supply voltage range : 6V ~ 10V

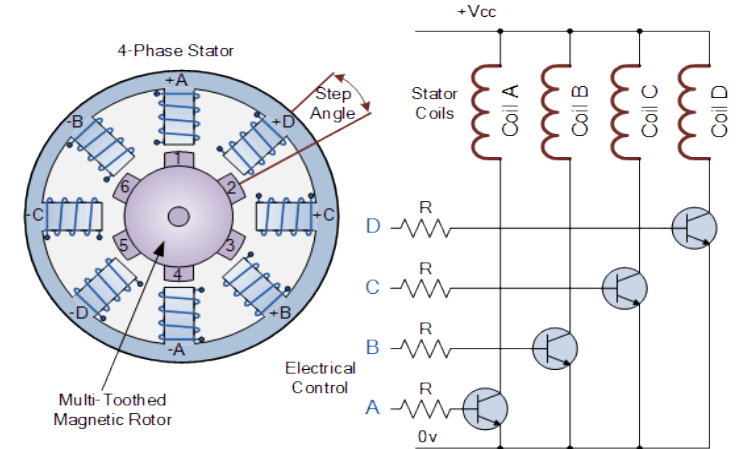


# ■ *Power Management*

## ✓ *IK6019 (High voltage high current stepper motor controller)*

### ○ Features

- Eight power output LDMOS Transistors
- Output current : 250mA per channel
- Maximum current : 2.5A
- Output voltage : 24V
- Serial MCU Interface
- Integrated suppression diode for inductive Loads



# ■ Power Management

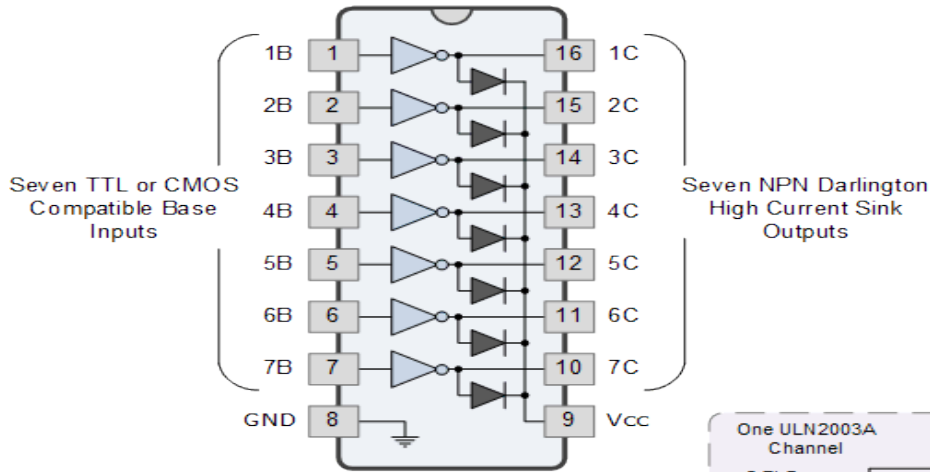
Application	Product	Function	Package	Compatibility	Remark
Transistor  Array  ICs	ILN2003AN/AD ILN2004AN/AD	High voltage / Current Darling Transistor Array	SOP / DIP - 16	TD62003/4 KID65003/4	Mass Production
	IK62083N/DW IK62084N/DW	8 Channel Darlington Sink Driver	SOP – 18/20 DIP – 18/20	TD62083/4 KID65083/4	Mass Production
	IK62783N/D IK62784N/D	8 Channel High voltage Source Driver	SOP – 18/20 DIP – 18/20	TD62783/4 KID65783/4	Mass Production
Charger  ICs	IK3051S2T	Constant voltage & current controller for Battery chargers and Adaptor (Vref 1%)	SOT-23-6	TSM1051	Mass Production
	IK3051AS2T	Constant voltage & current controller for Battery chargers and Adaptor (Vref 0.5%)	SOT-23-6	TSM1051A	Mass Production
	IK3134/35QF	LDO with OVP for Battery Charger	Chip	ASIC	Mass Production
	KL103N/D	Dual Operational Amplifier and Voltage Reference	SOP / DIP - 8	TSM103	Mass Production

# Power Management

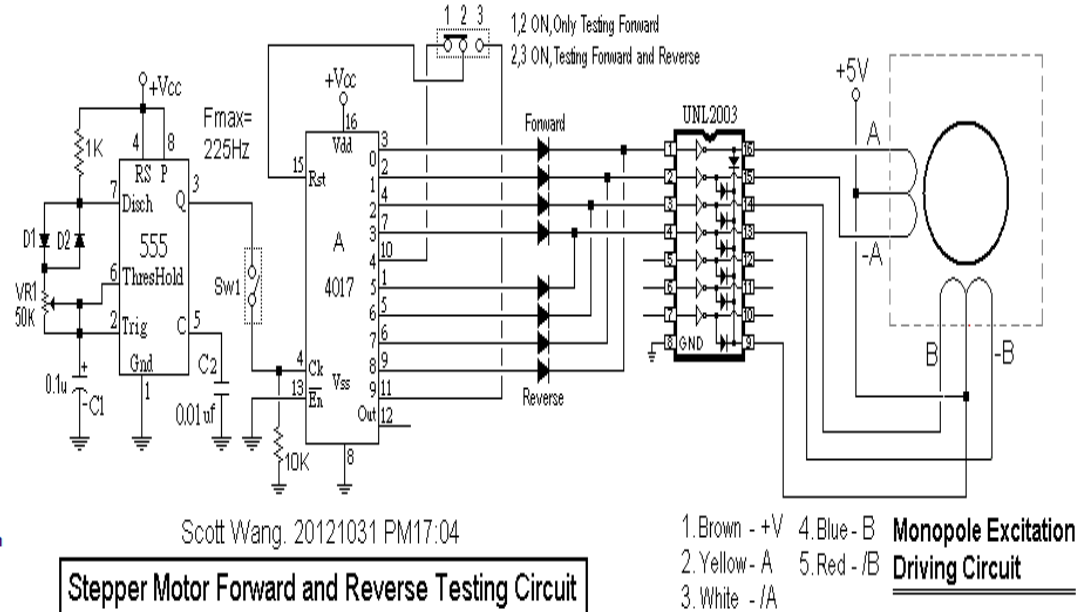
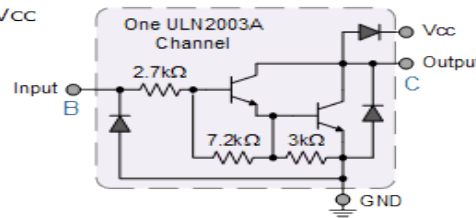
## ✓ Transistor Array ICs

### ○ Features

- Output voltage : 50V
- Output current : 500mA
- Output clamp diode



Chip Block Diagram



Application circuit

# ■ Power Management

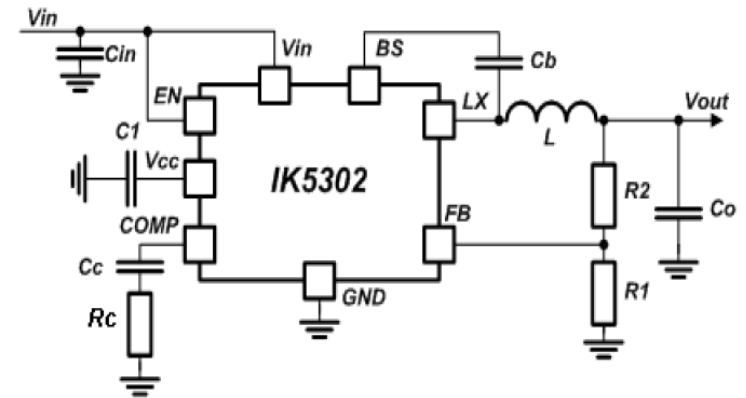
Application	Product	Function	Package	Compatibility	Remark
Power Factor Controller	IL34262N/D	Power Factor Controller	SOP/DIP - 8	MC34262	Mass Production
	ILA3354N	IC for Electronic Ballasts	DIP - 8	TFA3354	Mass Production
DC-DC Converter	IL34063AN/AD	DC to DC Converter	SOP/DIP - 8	MC34063	Mass Production
	IK5302D	DC-DC Switching voltage regulator – 3A	ESOP - 8	OWN	Mass Production
	IK1482	Synchronous Rectified Step Down Converter 2A ,18V	SOP/DIP - 8	MP1482	Mass Production
	IK1583	Asynchronous Step Down Converter 3A , 23V, 385Khz	SOP/DIP - 8	MP1583	Mass Production
	IK1591	Step Down Converter - 2A , 32V, 330Khz	SOP/DIP - 8	MP1591	Mass Production
	IK2307	Synchronous Rectified Step Down Converter 3A, 23V, 340Khz	SOP/DIP - 8	MP2307	Mass Production

# ■ Power Management

## ✓ *IK5302 (DC-DC Switching voltage regulator)*

### ○ Features

- Operation voltage range : 4.5V ~ 18V
- Synchronous rectification
- High efficiency : up to 93%
- Internal soft start
- High output accuracy : 1.5%
- Fixed 1Mhz PWM operation
- Short circuit protection



각종 신호를 처리 해 주는 고성능 chip의 Main 전원 공급원으로 적용



SET TOP Box



DVD Player



# ■ Power Management

Application	Product	Function	Package	Compatibility	Remark
Adjustable Voltage Regulators	IL317D0T/D2T	Adjustable Output Positive Voltage Regulator (1.5A)	TO-252, TO-263	LM317	Mass Production
	IL317L-LF/ET/PT	Adjustable Output Positive Voltage Regulator (100mA)	TO-92, SOT-223/89	LM317L	Mass Production
Switching Voltage Regulators	IL2576C-XX KB/D2T	Output Voltage (V) 3.3, 5.0, 12, 15, ADJ	TO-220-5L, TO-263-5L	LM2576-XX	Mass Production
	IL2596C-XX KB/D2T	Output Voltage (V) 3.3, 5.0, 12, ADJ	TO-220-5L, TO-263-5L	LM2596-XX	Mass Production
	IK1509-XXDT	Output Voltage (V) 3.3, 5.0, 12, ADJ	SOP-8	AP1509-XX	Mass Production
Precision Low Voltage Reference	TL431Z-LF/ST/PT/DT	Programmable precision references	TO-92, SOT-23, SOT-89, SOP-8	TL431	Mass Production
	TL432LF/LS	Programmable precision references	TO-92	TL432	Mass Production
Voltage Detector	IL75XXLF/ST/PT	Detecting Voltage (V) 2.2, 2.4, 2.55, 2.7, 2.8, 3.3, 3.9, 4.2, 4.7, 5.0	TO-92, SOT-23, SOT-89	HT70xx	Mass Production
	IL70XXLF/PT	Detecting Voltage (V) 2.1, 2.3, 2.7, 2.9, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.9, 4.2, 4.5	TO-92, SOT-89	KIA70xx	Mass Production

# ■ *Power Management*

Application	Product	Function	Package	Compatibility	Remark
Reset ICs	IN1232N/D	Low Power Micro Monitor Chip	DIP-8, SOP-8	DS1232	Mass Production
	IN1705N/D, IN1705RN/RD	Micro Monitor (RN,RD – Push-Pull Reset Output)	DIP-8, SOP-8	DS1705	Mass Production
	IN1706N/D, IN1706SRN/SRD	Micro Monitor (SRN, SRD – Push-Pull Reset Output)	DIP-8, SOP-8	DS1706S	Mass Production
	IN1708N/D	Micro Monitor Chip	DIP-8, SOP-8	DS1708	Mass Production

# *Interface product*



# ■ Interface

Application	Product	Function	Package	Compatibility	Remark
RS-232	IN75232N/DW	RS-232-D Interface 1 Chip IC	DIP-20, SOP-20	CD75232	Mass Production
	ILX232N/D	Drivers/Receiver (RS-232) (2/2) (V <sub>cc</sub> = 5V)	DIP-16, SOP-16	MAX232	Mass Production
	ILX3232N/D/TSD	Drivers/Receiver (RS-232) (2/2) (V <sub>cc</sub> = 3.3 to 5.5V)	DIP-16, SOP-16, TSSOP-16	MAX3232	Mass Production
	ILX3221EN/ED	±15kV ESD-Protected, 1μA, 3.0V to 5.5V, 250kbps, RS-232 Transceivers with Auto- Shutdown	DIP-16, SOP-16	MAX3221E	Under Development
	ILX3226N/D/TSD*	1μA Supply Current, 3.0V to 5.5V, 1Mbps RS-232 Transceivers with Auto-Shutdown Plus	DIP-16, SOP-16, TSSOP-16	MAX3226	Under Development
RS-485	ILX485N/D	Drivers/Receiver (RS-485) - 5.0V	DIP-8, SOP-8	MAX485	Mass Production
	ILX3485N/D	Drivers/Receiver (RS-485) - 3.3V	DIP-8, SOP-8	MAX3485	Mass Production
	ILX75176N/D	Drivers/Receiver (RS-485) - 5.0V	DIP-8, SOP-8	SN75176	Mass Production
	ILX3085N/D	Drivers/Receiver (RS-485) - 5.0V	DIP-8, SOP-8	MAX3085E	Mass Production

# ■ *Interface*

Application	Product	Function	Package	Compatibility	Remark
Isolator	ILX488-3D	Low-Power Triple-Channel Digital Isolator	SOP-16	OWN	Mass Production
Transmitters & Receivers	IN1488N/D	4-Channel Transmitter for Serial Interface	DIP-14, SOP-14	MC1488D	Mass Production
	IN1489AN/AD	4-Channel Receiver for Serial Interface	DIP-14, SOP-14	MC1489ADM	Mass Production
	INS82C50AN/D	Microcontroller for Serial Interface	DIP-40	INS82C50A	Mass Production
	IN82C55AN/BN	Programmable Peripheral Interface	DIP-40	82C55A	Mass Production
	INF8574AN/AD	Remote 8-Bit I/O Expander for I2C-Bus	DIP-16, SOP-16	PCF8574	Mass Production

# ■ *Interface*

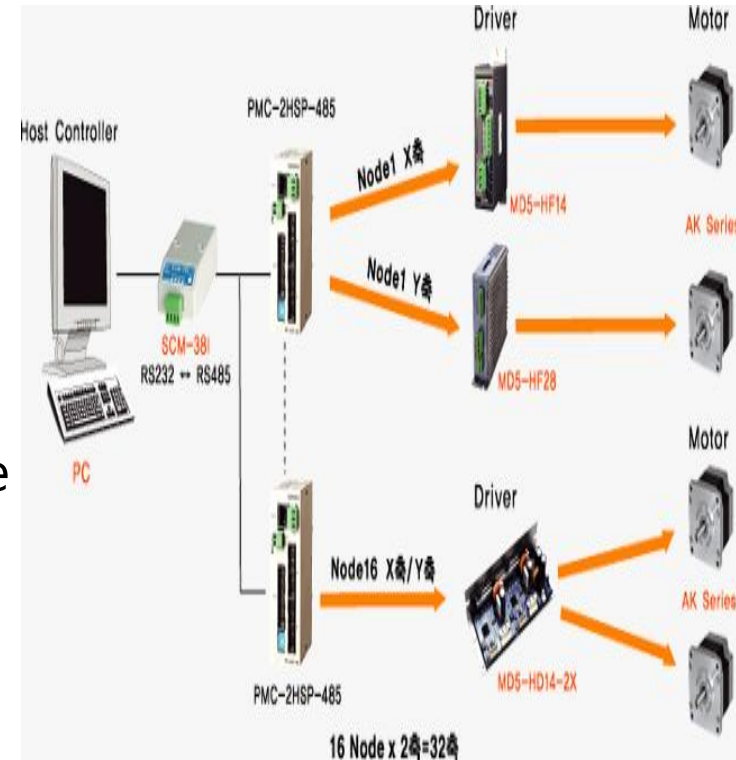
Application	Product	Function	Package	Compatibility	Remark
UART	IN16C554PL-TQ 64/PL68/TQ80	Enhanced Quadruple Version of the 16C550 UART (Universal Asynchronous Receiver Transmitter) Operating Voltage 5.0V Clock Frequency 16MHz Operating Temperature 0 ~ 70°C	64-TQFP 68-PLCC 80-TQFP	TL16C554	Mass Production
	IN16C554A- TQ6 4/PL68/TQ80	Enhanced Quadruple Version of the 16C550 UART (Universal Asynchronous Receiver Transmitter) Operating Voltage 3.3V Clock Frequency 16MHz Operating Temperature 0 ~ 70°C	64-TQFP 68-PLCC 80-TQFP	TL16C554	Mass Production
	IN16C1054-TQ64 /PL68/TQ80	Quad UART with 256-byte TX/RX FIFO Operating Voltage 3.3V Data rate up to 5Mbps Clock Frequency up to 80MHz	64-TQFP 68-PLCC 80-TQFP		Mass Production
	IN16C1058-TQ	Octal-UART Controller with 256-Byte FIFO (8 Port)	128-TQFP		Mass Production

# ■ *Interface*

## ✓ *ILX3485 / ILX485 (RS – 485)*

### ○ Features

- Low quiescent current : 300uA
- Common mode input voltage range 7V ~ 12V
- Full duplex and Half duplex version available
- Data rate : 2.5Mbps
- Current limiting and thermal shutdown for Drive overload protection



# ■ *Interface*

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## ✓ *ILX488 (Low Power Triple channel Digital Isolator)*

### ○ Features

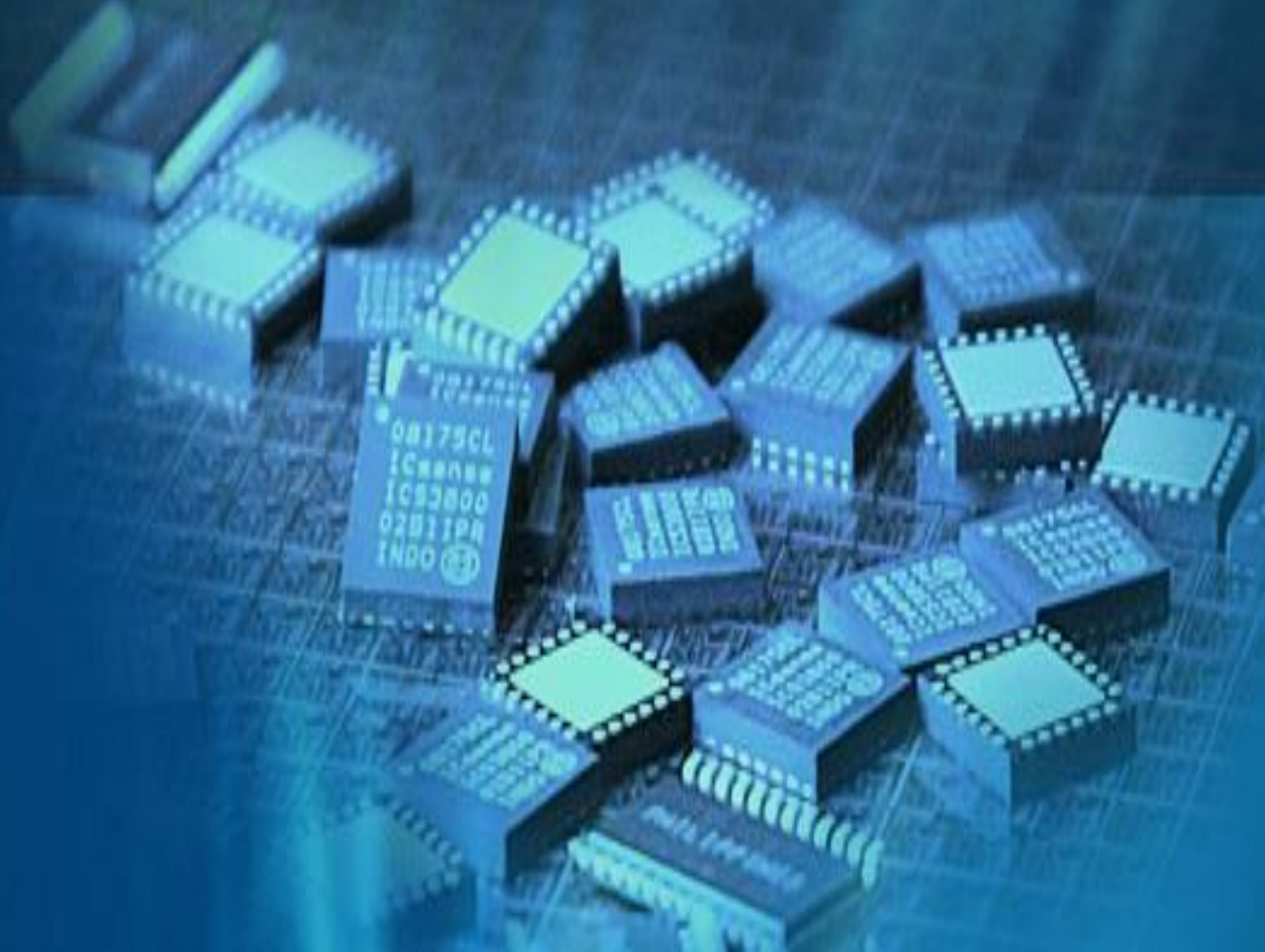
- Triple channel digital isolator
- High speed operation : DC – 1Mbps
- Low propagation delay : < 10ns
- Wide operation voltage : 2.3V ~ 5.5V
- Low power
- 2500 VRMS isolation



E-Meter Application



# *Analog & Mixed Signal*



# ■ Analog & Mixed Signal

Application	Product	Function	Package	Compatibility	Remark
Fire Detector	IK7001A	Optical Smoke Detector with voice	LQFP-32	Own	Mass Production
	IK7002/A	OP AMP for Fire Detector	SOT-23-5	Own	
	IK7003A	Mono Class-D Speaker Amplifier	SOP-8	Own	Mass Production
	IK7005A/B	Digital-analog IC for detection the rising temperature before the fire situation	SOP-16	Own	Mass Production
	IK7008SD	Photoelectric Smoke Detector Processor	TSSOP-24	Own	Mass Production

# ■ Analog & Mixed Signal

Application	Product	Function	Package	Compatibility	Remark
Telephone One-Chip Solution	IL2533AN/ADW	Multi-Standard CMOS Singl Chip Telephone I C with Dual Soft Clipping	DIP-28, SOP-28	AS2533	Mass Production
Pulse and Tone/ Pulse Dialers	IL91214AN/AD	Tone/Pulse Dialer with Flash Function	DIP-16, SOP-16 DIP-18, SOP-18	UMS91214	Mass Production
Speaker Integrated Circuits	KL34018N/DW	Voice Switched Speakerphone Circuit	DIP-28, SOP-28	MC34018	Mass Production
	IL34118N/DW	Voice Switched Speakerphone Circuit	DIP-28, SOP-28	MC34118 U4082	Mass Production
	IL34119N/D	Telephone Audio Amplifier	DIP-8, SOP-8	MC34119 U4083	Mass Production
	IL5009N/D	Speaker Amplifier	DIP-8, SOP-8	DBL5009	Mass Production
	ILA1062N/D ILA1062AN/AD	Low Voltage Transmission Circuit with Dialer Interface	DIP-16, SOP-16	TEA1062 TEA1062A	Mass Production
	IL6965N/D	Telephone Speech Network with Dialer Interface	DIP-20, SOP-20	GL6965	Mass Production

# ■ *Analog & Mixed Signal*

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Application	Product	Function	Package	Compatibility	Remark
Tone	IL2411N/D	Two-Tone Telephone Ringer	DIP-8, SOP-8	KA2411	Mass Production
Telephone	IL2418N/D	Two-Tone Telephone Ringer with Diode Bridge	DIP-8, SOP-8	KA2418 L1240	Mass Production
Ringers	IL6840N/D	Two-Tone Telephone Ringer with Diode Bridge	DIP-8, SOP-8	GL6840A GL6840B	Mass Production

# ■ Analog & Mixed Signal

Application	Product	Function	Package	Compatibility	Remark
Dual Operational Amplifiers	IL358N/D IL2904N/D	Dual Operational Amplifier	DIP-8, SOP-8	LM358 LM2904	Mass Production
	IL4558N/D	Dual Operational Amplifier	DIP-8, SOP-8	LM4558	Mass Production
	IL1458N/D	Dual General Purpose Operational amplifier	DIP-8, SOP-8	NJM1458	Mass Production
	IL4560N/D	Dual Operational Amplifier	DIP-8, SOP-8	NJM4560	Mass Production
	IL4580N/D	Dual Operational Amplifier	DIP-8, SOP-8	NJM4580, LM833	Mass Production
	KL103N/D	Dual Operational Amplifier and Voltage Reference	DIP-8, SOP-8	TSM103	Mass Production
Quad Operational Amplifiers	IL324N/D IL2902N/D	Quad Operational Amplifier	DIP-14, SOP-14	LM324 LM2902	Mass Production
Programmable Operational Amplifier	IL1776CN/CAN IL1776CD/CAD	Micro-power Programmable Operational Amplifier CAN, CAD ( $T_A = -40^\circ \sim 85^\circ\text{C}$ )	DIP-8, SOP-8	MC1776C	Mass Production

# ■ Analog & Mixed Signal

Application	Product	Function	Package	Compatibility	Remark
Precision Operational Amplifier	IL9002N/D	Precision Operational Amplifier	DIP-8, SOP-8	OP-07A	Mass Production
	IL9002AN/D	Precision Operational Amplifier	DIP-8, SOP-8	OP-07	Mass Production
Rail to Rail Operational Amplifier	IL8515*	1.8V Low Power CMOS OP Amp.	SOT-23	AD8515	Under Development
	<b>IL8541*</b>	<b>CMOS General-Purpose Amplifiers</b>	<b>SOT-23</b>	<b>AD8541</b>	<b>Under Development</b>
	IL8615*	Precision, 20 MHz, CMOS, OP Amp.	SOT-23	AD8615	Under Development
Dual Comparator	IL393N/D IL2903N/D	Dual Comparator	DIP-8, SOP-8	LM393 LM2903	Mass Production
Quad Comparator	IL339N/D IL2901N/D	Quad Comparator	DIP-14, SOP-14	LM339 LM2901	Mass Production

# ■ Analog & Mixed Signal

Application	Product	Function	Package	Compatibility	Remark
ICs for Audio Systems	IL34119N/ D	Low Power Mono	DIP-8, SOP-8	MC34119N	Mass Production
	IL386N/ D	Low Power Mono	DIP-8, SOP-8	LM386	Mass Production
	ILA7050N	Low Power Mono/Stereo BTL	DIP-8	TDA7050	Mass Production
	ILA7052N	Low Power Mono	DIP-8	TDA7052	Mass Production
	ILA7053N	Low Power Stereo BTL	DIP-16	TDA7053	Mass Production
	KL7496LN	Low Power Stereo BTL with DC Control	DIP-20	TDA7496L	Mass Production
	ILA7056	Middle Power Mono	SOT110-1	TDA7056	Mass Production
	ILA7056B	Middle Power Mono with DC Control	SOT 110-1	TDA7056B	Mass Production
	ILA1519B, B1, B1Q	Large Power Mono/Stereo	SIL-9P (SOT110-1, (SOT131-2, SOT157-2)	TDA1519B	Mass Production

# ■ Analog & Mixed Signal

Application	Product	Function	Package	Compatibility	Remark
Timers	INA8583N	Clock Calendar with 256x8 Bit Static RAM with I <sup>2</sup> C Bus	DIP-8	PCF8583P	Mass Production
	ILC555N/D	Timer	DIP-8, SOP-8	GLC555	Mass Production
	ILC556N/D	Dual Timer	DIP-14, SOP-14	GLC556	Mass Production
Real Time Clock ICs	IN1307N/D	64x8, Serial, I <sup>2</sup> C Real-Time Clock	DIP-8, SOP-8	DS1307	Mass Production
	IN1363N/D	Real-time clock/calendar with X-tal	DIP-8, SOP-8	PCF8563, DS1208	Mass Production
	IN141618N	Real Time Clock Plus RAM	DIP-24	MC141618	Mass Production
Melody ICs	BT8028/LF/N	Maximum Number of Tunes (Number of Notes) 16(64)	Bare chip TO-92, DIP-8	own	Mass Production
	BT8031/LF/N	Maximum Number of Tunes (Number of Notes) 2(127)	Bare chip TO-92, DIP-8	own	Mass Production
RFID ICs	IZ2803-5	Read/write transponder IC (write interface compatible with ATE5575M1)	Bare Chip	own	Mass Production
	IZ2806-5	Amplitude-modulated transponder IC	Bare Chip	EM4100	Mass Production



# ■ Analog & Mixed Signal

Application	Product	Function	Package	Compatibility	Remark
ICs for Audio Systems	KL6270N/D	Audio amplifier and Voice operated Gain adjusting device(VOGAD)	DIP-8, SOP-8	SL6270	Mass Production
	KL3340N/D	Electronic Attenuator : DC operated Volume Control	DIP-8, SOP-8	MC3340	Mass Production
	KL2822MN/D	Dual Low Voltage Power Amplifier – Mono/Stereo Audio Amplifier	DIP-8, SOP-8	TDA2822M	Mass Production
	IL5009N/D	Speaker Amplifier	DIP-8, SOP-8	DBL5009	Mass Production
	IK7437Q	Digitally Controlled Audio Processor 4 Speaker Attenuator	QFP-44	TDA7437	Mass Production

# ■ Analog & Mixed Signal

## ✓ IN1307 (Real Time Clock)

### ○ Features

- Minutes, hours, date of the month, day of the week, and year with leap-year
- 56-byte, battery backed, Nonvolatile (NV) RMA for data storage
- 2-Wire serial interface
- Programmable square wave output signal
- Automotive power fail detect and switch circuitry
- Consumes less than 500nA in battery backup mode with oscillator running



# ■ Analog & Mixed Signal

## ✓ *IN1363 (Real time clock/calendar with X-Tal)*

### ○ Features

- Count of seconds, minutes, hours, week days, date, months and years with consideration of leap years (until 2100)
- Double wire serial interface : 400Khz
- Function programming of alarm, timer and interruption
- Automatic determination of the supply voltage drop
- Consumption current of less than 450nA with supply of 2V with the operating oscillator