

KEC Line-up & Road map

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KEC

KEC Product Lineup

Discrete

- **Bipolar Transistors**
 - General Purpose
 - Built-in Bias Resistor
 - Low VCE (Sat)
 - Switching
 - Darlington
 - Audio Muting
 - Current Regulating
 - JFET
- **MOSFETs**
 - SMOS
 - Trench Low Vol.
 - Planar High Vol.
 - Super Junction High Vol.
- **Diodes**
 - Small Signal Switching
 - Small Signal Schottky
 - Zener
 - TVS
- **Rectifiers**
 - Power Schottky
 - Ultra Fast Recovery
- **Others**
 - IGBT

IC

- **Linear ICs**
 - Shunt Regulator
 - Voltage Detector
 - G/P Vol. Regulator
 - Quasi Vol. Regulator
 - Low Drop Out Regulator
 - CMOS Regulator
- **DC-DC Convertors**
 - Switching Regulator
 - White LED Driver
- **AMP/Comparators**
 - OP AMP
 - Comparators
- **Others**
 - Logic LMOS
 - Transistor Array
 - Interface Driver
 - PWM Controller

Others

- **Automobile**
 - Alternator Diode
 - Surge Absorber Diode
- **Power Module**
 - IGBT Module
 - MOSFET Module

Contents



1. MOSFET



2. IGBT



3. Transistor











4. Diode







5. IC

1. MOSFET

▶ LINE UP

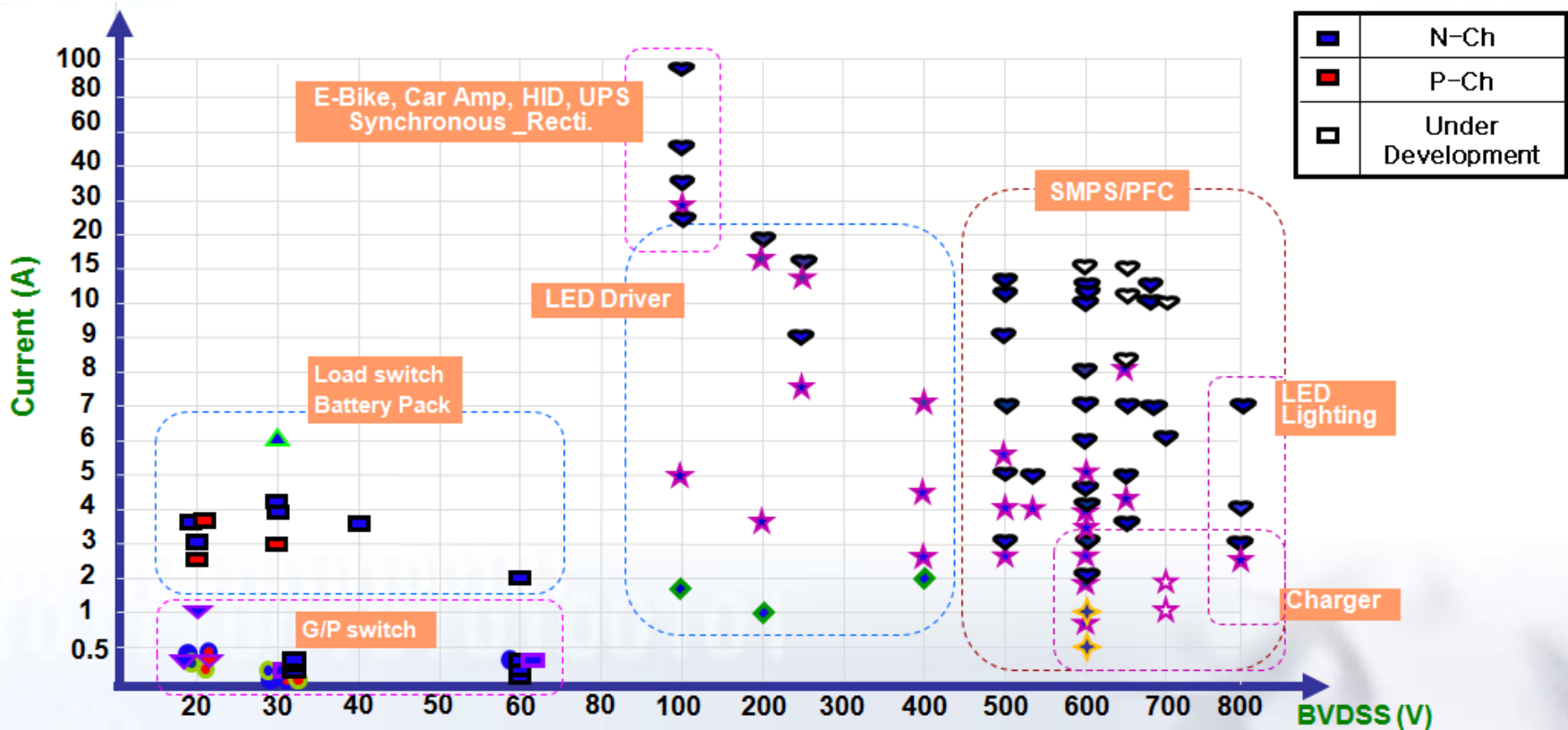
VSM	ESM	TES6	USM	SOT-23	SOT-223	FLP-8	DPAK
							
1.2*0.8*0.5mm	1.6*0.85*0.7mm	1.6*1.2*0.5mm	2.0*1.25*0.9mm	2.9*1.3*1.0mm	6.5*3.5*1.8mm	4.85*3.94*1.6mm	6.6*6.1*2.3mm

Package / Application	VSM	ESM	TES6	USM	SOT-23	US6	SOT-223	FLP-8	DPAK/ IPAK	TO-92L	TO-220AB	TO-220IS
S-MOS	●	●		●	●	●						
LV MOS	●	●	●		●		●	●	●		●	●
HV MOS							●		●	●	●	●

TO-92L	I-PAK	TO-220AB	TO-220IS
			

1. MOSFET








► MOSFET (Application Map)



Package	ULP-3	VSM	ESM TES6	USM US6	SOT-23	PDFN56	SOT-223	TO-92L	D/IPAK(1)	TO-220IS(1) TO-220AB

2. IGBT







▶ LINE UP

SET Application	Type No.	BV _{CES} (V)	I _C (A)		V _{CE(SAT)} (V) Typ.	Package
			@25 °C	@100 °C		
 Sewing Machine/ Washing Machine	KGT15N60FDA	600	15	7.5	1.80	TO-220IS(1)
 HA (Robot Cleaner)	KGF20N60PA	600	40	20	1.65	TO-220AB
	KGF30N60PA	600	60	30	1.65	
	KGF40N60PA	600	80	40	1.65	
 Industrial Use (Welder)	KGF30N60KDA	600	60	30	1.65	TO-247
	KGF40N60KDA	600	80	40	1.65	
	KGF50N60KDA	600	100	50	1.65	
 HA (IH Cooker)	KGT15N120NDH	1200	30	15	1.90	TO-3P(N)-E
	KGT25N120NDH	1200	50	25	1.90	
	KGT30N120NDH	1200	60	30	1.95	
 HA (IH Rice Cooker)	KGF15N120NDS	1200	30	15	1.80	TO-3P(N)-E
	KGF25N135NDH	1350	50	25	1.75	
	KGF30N135NDH	1350	60	30	1.75	
 White Goods (AIR-CON)	KGF30N60KDA	600	60	30	1.65	TO-247
	KGF40N60KDA	600	80	40	1.65	
	KGF50N60KDA	600	100	50	1.65	
 General Inverter (Motor Driving)	KGF15N120KDA	1200	30	15	1.90	TO-247
	KGF25N120KDA	1200	50	25	1.90	
	KGF40N120KDA	1200	80	40	1.90	






3. Transistor

◆ SMD Transistor

UNIT: mm

TFSM	TFSV/6	(T)VSM	ESM	TESV/6	USM/Q/V/6
					
0.6×0.8×0.38	1.0×0.8×0.38	1.2×0.8×0.5(0.32)	1.6×0.85×0.7	1.6×1.2×0.5	2.0×1.25×0.9

Package Application	TFSM	TFSV/6	VSM	ESM	TESV/6	USM	USV/6	TSM	TSV/6	SOT-23	SOT-89	DKPAK
General Purpose	●		●	●	●	●	●	●	●	●	●	●
Switching					●	●				●	●	●
Low $V_{CE(sat)}$						●		●		●	●	
Audio Muting							●		●	●		
High h_{FE}										●	●	
Darlington										●		●
BRT	●	●	●	●	●	●	●		●	●		









SOT-23	TSM/Q/V/6	SOT-89	SOT-223	DKPAK
				
2.9×1.3×1.0	2.9×1.6×0.7	4.7×2.5×1.7	6.5×3.5×1.8	6.6×6.1×2.3

3. Transistor



◆ THD Transistor

UNIT: mm








TO-92	TO-92L	IPAK	TO-126	TO-220IS	TO-220AB	TO-3P(H)IS	TO-3P(N)
							
4.8×4.7×3.7	5.2×7.2×2.5	6.6×6.1×2.3	8.3×11×3.4	10×15×4.5	10.3×15.3×4.7	16.3×22×5.5	15.6×19.9×4.8

Package Application	TO-92	TO-92L	IPAK	TO-126	TO-220IS	TO-220AB	TO-3P(H)IS	TO-3P(N)
General Purpose	●	●		●	●		●	●
Switching	●	●	●	●	●	●		
High h_{FE}	●	●		●	●			
Darlington	●	●	●		●			
BRT	●							

4. Diode

◆ Small Signal Diode Line-up

UNIT: mm

ELP-2	ULP-2	TFSC	VSC	ESC	USC	USCF
						
0.6×0.3×0.28	1.0×0.6×0.36	0.8×0.6×0.38	1.0×0.6×0.5	1.2×0.6×0.6	1.7×1.25×0.9	1.7×1.25×0.7





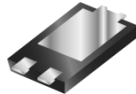
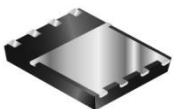
Package \ Application	ELP-2	ULP-2	TFSC	VSC	ESC	USC	USCF	TFSM	VSM	ESM	USM	SOT-23	TFSV/6	TESV/6	USV/6
Switching Diode			●	●	●	●			●	●	●	●		●	●
SBD	●	●	●	●	●	●	●		●	●	●	●			
Zener Diode	●		●	●	●	●	●					●			
TVS	●	●	●	●	●	●	●			●	●	●		●	●

TFSM	VSM	USM	SOT-23	TFSV/6	TESV/6	USV/6
						
0.8×0.6×0.38	1.2×0.8×0.5	2.0×1.2×0.9	2.9×1.3×1.0	1.0×0.8×0.38	1.6×1.2×0.5	2.0×1.25×0.9







4. Diode

◆ Power Diode Line-up

UNIT: mm






USF	SMF	SMA	TSM	TO-277	PDFN-56
					
1.9×1.25×0.6	2.6×1.6×0.98	4.5×2.6×2.0	2.9×1.6×0.7	2.9×1.6×0.7	5.75×5.1×0.9

Package \ Application	USF	SMF	SMA	TSM	TO-277	DPAK	TO-220IS	MR	B-PF	C-PF	DO-218
UFRD						●	●				
SBD	●	●	●	●	●	●	●				
ZENER	●	●	●								●
TVS	●		●								
Alternator Diode								●	●	●	

DPAK	TO-220IS	MR	B-PF	C-PF	DO-218
					
6.6×6.1×2.3	10×15×4.5	13.5×10.0×5.0	Φ13.0 ×8.0	Φ10.1 ×6.2	15.5 ×7.6×5.0




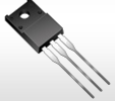
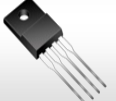
5. IC

Linear Regulator-IC (G/P-Type)

I _o [A]	Output Voltage [V]											V _{IN(MAX)} [V]	V _{DROP} [V]	SOT-89	TO-92	TO-92L	DPAK	TO-220IS
	5	6	7	8	9	10	12	15	18	20	24							
0.15	●	●		●	●	●	●	●	●	●	●	40	1.7	KIA78LxxF	KIA78SxxP	KIA78LxxB P		
- 0.15	●	●		●	●	●	●					-40	1.7	KIA79LxxF	KIA79SxxP	KIA79LxxB P		
0.5	●			●			●	●				35	2				KIA78MxxF	KIA78MxxPI
1.0	●	●	●	●	●	●	●	●	●	●	●	40	2				KIA78xxAF	KIA78xxAPI
	ADJ											40					KIA317F	KIA317PI
- 1.0	●	●	●	●	●	●	●	●	●	●	●	-40	2		KIA79xxF			KIA79xxPI

5. IC

Linear Regulator-IC (Bipolar LDO-Type)

I _o [A]	Output Voltage [V]														V _{IN(MAX)} [V]	V _{DROPO} [V]	On / Off Control	SOT-223 	DPAK 	DPAK-5 	TO-220IS 	TO-220IS-4 
	ADJ	1.2	1.5	1.8	2.0	2.5	3.3	5	6	8	9	10	12	15								
1						●	●	●	●	●	●	●	●	●	35	0.5	-		KIA78DxxAF			
						●	●	●	●	●	●	●	●	●	35	0.5	○			KIA78RxxF		KIA78RxxPI
	●		●	●	●	●	●	●							16	0.3	○			KIA78RxxxF		KIA78RxxxPI
	●	●	●	●		●	●	●							12	1.1	-	KIA1117BSxx	KIA1117CFxx		KIA1117BPIxx	
2	●					●	●	●	●	●	●	●	●	35	0.5	○						KIA278RxxPI
	●		●	●	●	●	●	●						16	0.5	○						KIA278RxxxPI
3	●					●	●	●	●	●	●	●	●	35	0.5	○						KIA378RxxPI
	●		●	●	●	●	●	●						16	0.5	○						KIA378RxxxPI
5	●		●	●	●	●	●							16	0.5	○						KIA578RxxxPI

5. IC

■ CMOS LDO Regulator-IC

Part No.	$V_{IN(MAX)}$	I_{OUT}	On/Off Function	V_{OUT}	V_o Accuracy	Package	MP
KIC3213Txx	5.5V	150mA	○	1.2~3.3V(0.1V Step)	±1%	TSV	OK
KIC3241Sxx	6V	1A	○	1.0/1.2/1.5/1.8/2.5.3.3V	±1%	SOT-89-5	OK

■ Quasi-LDO Voltage Regulator

Part No.	V_{IN} (MAX)	I_{OUT}	V_{OUT}	V_{DROP} (Typ.)	V_o Accuracy	Package	MP
KIA1117BPI/BS/BF/CFxx	12V	1A	ADJ/ 1.2/1.5 /1.8/ 2.5/3.3/ 5V	1.1V	±2%	DPAK, SOT-223, TO-220IS	OK

5. IC

■ Shunt Regulator

Part No.	V_{KA}	$I_{K(MAX)}$	$I_{MIN(Max.)}$	$V_{REF(Typ.)}$	Accuracy (%)	Package	MP
KIA431/F	37V	100mA	1mA	2.495V	± 2.2	TO-92 / SOT-89	OK
KIA431A/AF/AM					± 1.0	TO-92 / SOT-89/ SOT-23	OK
KIA431B/BF/BM					± 0.5	TO-92 / SOT-89/ SOT-23	OK
KIA431ACM			600μA		± 1.0	SOT-23	OK
KIA431BCM			± 0.5		SOT-23	OK	
KIA431AAM			100μA		± 1.0	SOT-23	OK
KIA431BAM					± 0.5	SOT-23	
KIA2431AP/AM/AT	16V	50mA	80μA	1.24V	± 1.0	TO-92 / SOT-23 / TSV	OK
KIA2431BP/BM/BT					± 0.5	TO-92 / SOT-23 / TSV	OK

5. IC

■ OP-Amp

ITEM	V _{CC} (V) (Max)	V _{IO} (mV) (Typ / Max)	I _{Source} (mA) (Min / Typ.)	f _T (MHz) (Typ.)	Package				
					TSV	FLP-8	DIP-8	FLP-14	DIP-14
Single	36	2 / 7	20 / 40	1	KIA75S358F	-	-	-	-
	36	0.5 / 6	27 / -	3	KIA75S558F	-	-	-	-
Dual	36	2 / 7	20 / 40	1	-	KIA358F	KIA358P	-	-
	36	0.5 / 6	27 / -	3	-	KIA4558F	KIA4558P	-	-
Quad	36	2 / 7	20 / 40	1	-	-	-	KIA324F	KIA324P

■ Comparator

ITEM	V _{CC} (V) (Max)	V _{IO} (mV) (Typ / Max)	I _{sink} (mA) (Min / Typ)	Trsp(μs) (Typ)	Package				
					TSV	FLP-8	DIP-8	FLP-14	DIP-14
Single	36	2 / 5	6 / 16	1.3	KIA75S393F	-	-	-	-
Dual	36	2 / 5	6 / 16	1.3	-	KIA393F	KIA393P	-	-
Quad	36	2 / 5	6 / 16	1.3	-	-	-	KIA339F	KIA339P

5. IC

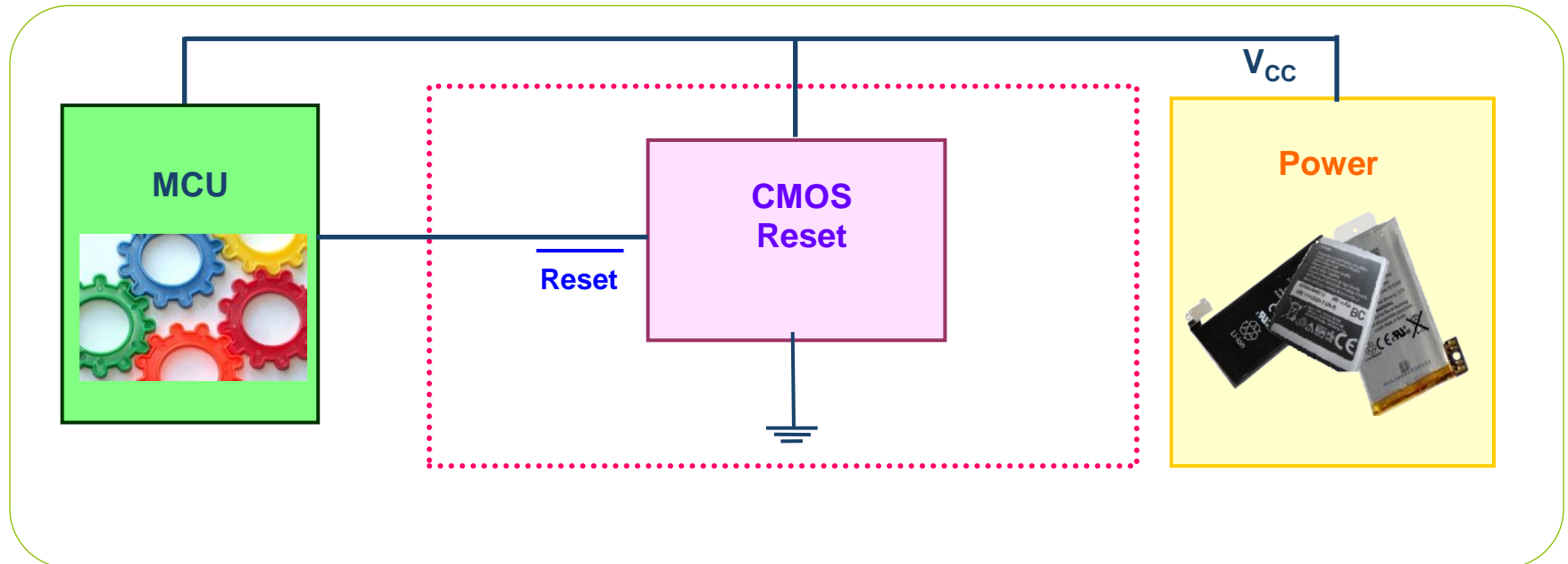
■ Transistor Array & Interface Drive IC

Part No.		Channel	Clamp Diode	V_{OUT}	I_{OUT} (Max)	Package	MP	
Darlington Driver		KID65001~4AF/AP	7	○	50V	500mA	FLP-16 /DIP-16	OK
		KID65083~4AF/AP	8	○	50V	500mA	FLP-20 /DIP-18	OK
Single Driver	Common Emitter	KID65501~4F/P	7	-	35V	200mA	FLP-16 /DIP-16	OK
	Common Collector	KID65505~6F/P	7	-	35V	200mA	FLP-16 /DIP-16	OK
	Isolated	KID65507F/P	5	-	35V	200mA	FLP-16 /DIP-16	OK
High Voltage Source Driver		KID65783AF/BF/AP	8	○	50V	500mA	FLP-20 /FLP-18/ DIP-18	OK

5. IC

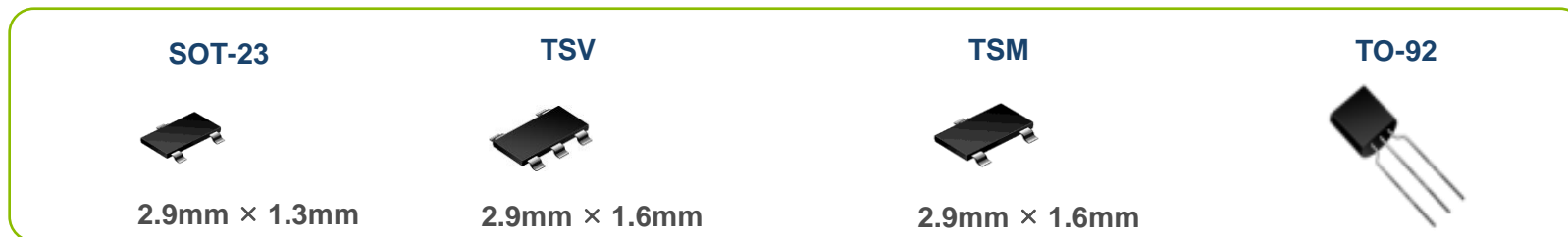
■ CMOS Voltage Reset & Detector

- High accuracy $\pm 1\%$ (Typ.)
- Super low supply current.
- Operating-temperature range $-40\sim+105^{\circ}\text{C}$
- Output type : CMOS, Open drain output
- Detecting voltage rank 0.1V step



5. IC

◆ CMOS Voltage Detector & Reset IC Package Line-up



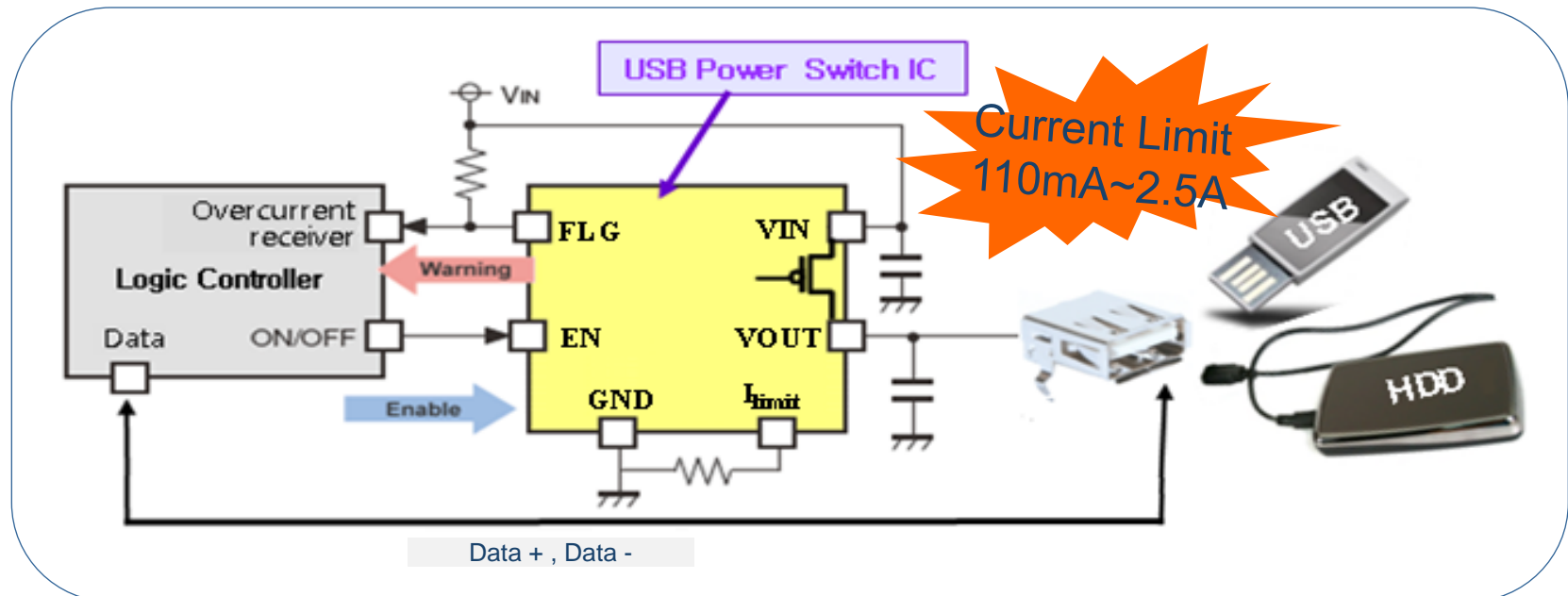
◆ CMOS Voltage Detector & Reset IC Product Line-up

Part No.		Package	Output Function	V _{DD} (Max)	V _{DET} Range	Accuracy	Delay Time	Supply Current	MP
Detector	KIC75xxM/P/T5	SOT-23 TO-92	Open-Drain	12V	0.8~6V	1%	-	0.25μA	OK
	KIC71xxM/P/T5	TSV	Push- Pull	12V	0.8~6V	1%	-	0.25μA	OK
External Reset	KIC76xxT5	TSV	Open-Drain	12V	0.8~6V	1%	Adj.	0.35μA	OK
	KIC72xxT5		Push- Pull	12V	0.8~6V	1%		0.35μA	OK
Internal Reset	KIC77A/B/C/D/ ExxT/T2/M/M2	TSM SOT-23	Open-Drain	7V	1.6~5V	1%	240/50/100/ 200/400ms	0.5μA	OK
	KIC73A/B/C/D/ ExxT/T2/M/M2		Push- Pull	7V	1.6~5V	1%		0.5μA	OK
Internal Reset + Manual Reset	KIC79A/B/C/D xxT5	TSV	Open-Drain	6V	1.6~4.6V	1%	20/50/ 100/200ms	1.0μA	OK

5. IC

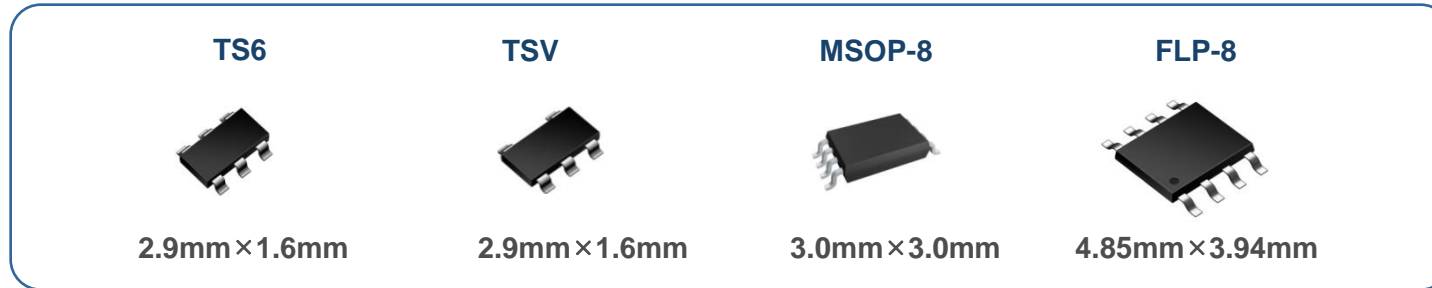
■ USB Power Switch IC(Current Limited Power Switch)

- ESD : 6KV (HBM), 500V (MM) → Competitor : 300V(MM)
- Short Circuit Protection : 100mA~2.5A Adjustable Current Limit and Fix
- Reverse Current Blocking : Under to $1\mu\text{A}$
- Fault report with blanking time : 7ms
- Power MOSFET $R_{\text{DS(ON)}}$: $100\text{m}\Omega$
- Thermal Shut Down Protection : $T_{\text{SD}}(150^\circ\text{C})$, $T_{\text{HYS}}(25^\circ\text{C})$



5. IC

◆ USB Power **Switch IC** Package Line-up



◆ **Current Limited Power Switch IC** Product Line up

Item	PKG	Channel	V _{EN}	V _{IN(MAX)}	I _{OUT}	R _{DS(ON)}	I _{LMIT}	MP
KIC6981F/MF	FLP – 8/ MSOP-8	1-CH	Active High	5.5V	1.5A	90mΩ	2.1A	OK
KIC6971F/MF	MSOP - 8	2-CH	Active High	5.5V	1.5A	90mΩ	2.1A	OK
* KIC6961T	TS6	1-CH	Active High	5.5V	ADJ	100mΩ	ADJ	'15. 2Q.
* KIC6982F	FLP-8	1-CH	Active High	5.5V	1.0A	90mΩ	1.5A	'15. 2Q.
* KIC6983T	TSV	1-CH	Active High	5.5V	0.5A	90mΩ	0.8A	'15. 2Q.

* : Underdevelopment

5. IC

■ AC-DC Control IC

Part No.	Max. Power	Topology	Output Control	Frequency Control	Protection	PKG	MP
KIC3923F	65W	Fly-back, SSR	Current Mode	Burst/PFM/PWM	Brown-out, OVP, OCP, OTP	FLP-8	OK
* KIC3925F	65W	Fly-back, SSR	Current Mode	Burst/PFM/PWM /Quasi-Resonant	OVP, OCP, OTP	FLP-8	'15. 3Q

■ LED Driver IC

Part No.	Max. Power	Topology	Output Control	Frequency Control	Protection	PKG	MP
KIC3522F	25W	Fly-back, SSR	Current Mode	PFM	Open/Short LED Protection	FLP-8	OK

■ PFC IC

Part No.	Max. Power	Topology	Frequency Control	Operating Voltage	PKG	MP
* KIC3563F	25W	Boost / Fly-back	DCM	12~27V	FLP-8	OK

* : Underdevelopment

Thank You !

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