Automatic Level Control Driver User Guide V1.00.01

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1. Functions

DrvALC_SetREG

Prototype

void DrvALC_SetREG(uint32_t u32Value);

Description

Set ALC control register.

Parameter

u32Value - [in] Register value, write directly into ALC_REG

Include

Driver/DrvALC.h

Return Value

None

DrvALC_SetNGTH

Prototype

void DrvALC_SetNGTH(uint8_t u8NGTH);

Description

Set ALC_REG NGTH.

Parameter

u8NGTH: 000 = -81dB 001 = -75dB 010 = -69dB 011 = -63dB
100 = -57dB 101 = -51dB 110 = -45dB 111 = -39dB

Include

Driver/DrvALC.h

Return Value

None

DrvALC_SetNGEN

Prototype

void DrvALC_SetNGEN(uint8_t u8NGEN);

Description

Set ALC_REG NGEN

Parameter

u8NGEN: Set 0 as Noise gate disable; Set 1 as Noise gate enable

Include

Driver/DrvALC.h

Return Value

None

DrvALC_EnableNoiseGate

Prototype

void DrvALC_EnableNoiseGate(uint8_t u8NGSEL, uint8_t u8NGENval);

Description

Enable Noise Gate in normal mode only.

Parameter

u8NGSEL: Set 0 as using P2P value for noise gate threshold determination
Set1 as using absolute peak value for NGTH

u8NGENval: 1 = Enable, 0 = Disable

Include

Driver/DrvALC.h

Return Value

None

DrvALC_SetZeroCrossing

Prototype

void DrvALC_SetZeroCrossing(uint8_t u8ALCZC);

Description

Set ALC_REG ALCZC; Only relevant when the ALC is enabled

Parameter

u8ALCZC: 0=Zero Crossing disable; 1=Zero Crossing Enable

Include

Driver/DrvALC.h

Return Value

None

DrvALC_SetAttackTime

Prototype

void DrvALC_SetAttackTime(uint32_t u32ATKstep);

Description

Set ALC_REG ALCATK, ALC attack time

Parameter

u32ATKstep: Range N = 0~10 Steps

Normal mode (500us~512ms): Time = 500us * 2^N

Limiter mode(125us~128ms): Time = 125us * 2^N

Include

Driver/DrvALC.h

Return Value

None

DrvALC_SetDecayTime

Prototype

void DrvALC_SetDecayTime(uint32_t u32DCYstep);

Description

Set ALC_REG ALCDCY, ALC decay time

Parameter

u32DCYstep: Range N = 0~10 Steps

Normal mode (125us~128ms): Time = 125us * 2^N

Limiter mode(31us~ 32ms): Time = 31us * 2^N

Include

Driver/DrvALC.h

Return Value

None

DrvALC_SetMode

Prototype

void DrvALC_SetMode(uint8_t u8Mode) ;

Description

Set ALC_REG ALCMODE.

Parameter

u8Mode: 0=Normal mode; 1=Peak limiter mode

Include

Driver/DrvALC.h

Return Value

None

DrvALC_SetTargetLevel

Prototype

void DrvALC_SetTargetLevel(uint32_t u32Level) ;

Description

Set ALC_REG ALCLVL.

Parameter

u32Level: Steps N = 0~15 level = -28.5 + 1.5*N (dB)

Include

Driver/DrvALC.h

Return Value

None

DrvALC_ SetHoldTime

Prototype

void DrvALC_SetHoldTime(uint32_t u32HoldTime) ;

Description

Set ALC_REG ALCHLD.

Parameter

u32HoldTime: Steps N = 0~10 Time = 0 + 2^N (ms) (N>0)

Include

Driver/DrvALC.h

Return Value

None

DrvALC_ SetMinGain

Prototype

void DrvALC_SetMinGain(uint32_t u32MinGain);

Description

Set ALC_REG ALCMIN.

Parameter

u32MinGain: Steps N = 0~7 Minimum level = -12 + 6*N (dB)

Include

Driver/DrvALC.h

Return Value

None

DrvALC_ SetMaxGain

Prototype

void DrvALC_SetMaxGain(uint32_t u32MaxGain);

Description

Set ALC_REG ALCMAX.

Parameter

u32MaxGain: Steps N = 0~7 Maximum level = -6.75 + 6*N (dB)

Include

Driver/DrvALC.h

Return Value

None

DrvALC_ SetALCselect

Prototype

void DrvALC_SetALCselect(uint8_t u8Select);

Description

Set ALC_REG ALCSEL.

Parameter

u8Select: 0= ALC disabled; 1= ALC enabled

Include

Driver/DrvALC.h

Return Value

None

DrvALC_ SetALCpeakLimiter

Prototype

void DrvALC_SetALCpeakLimiter(uint8_t u8PKlimiter);

Description

Set ALC_REG ALCPKLIM.

Parameter

u8PKlimiter: 0= enable fast dectrment when signal exceeds 87.5% of full scale;
1= disable fast dectrment when signal exceeds 87.5% of full scale

Include

Driver/DrvALC.h

Return Value

None

DrvALC_ GetFastDecrement

Prototype

uint32_t DrvALC_GetFastDecrement(void);

Description

Get Fast decrement (Clipping Flag).

Parameter

None

Include

Driver/DrvALC.h

Return Value

0 = Flag is not set

1 = Flag is set when signal level is detected to be above 87.5% of full scale

DrvALC_ GetNoise

Prototype

uint32_t DrvALC_GetNoise(void);

Description

Get NOISE (Noise Flag).

Parameter

None

Include

Driver/DrvALC.h

Return Value

0 = Flag is not set

1 = Flag is set when signal level is detected to be below NGTH

DrvALC_ GetP2P

Prototype

uint32_t DrvALC_GetP2P(void);

Description

Get peak to peak value.

Parameter

None

Include

Driver/DrvALC.h

Return Value

9 MSBs of measured peak to peak value

DrvALC_ GetPeak

Prototype

uint32_t DrvALC_GetPeak(void);

Description

Get Absolute peak value.

Parameter

None

Include

Driver/DrvALC.h

Return Value

9 MSBs of measured absolute peak value

DrvALC_ EnableInt

Prototype

void DrvALC_EnableInt(void);

Description

Enable ALC interrupt and NVIC corresponding to ALC.

Parameter

None

Include

Driver/DrvALC.h

Return Value

None

DrvALC_ DisableInt

Prototype

void DrvALC_ DisableInt (void);

Description

Disable ALC interrupt and NVIC corresponding to ALC.

Parameter

None

Include

Driver/DrvALC.h

Return Value

None

DrvALC_GetVersion

Prototype

int32_t DrvALC_GetVersion(void);

Description

Get the version number of ALC driver.

Include

Driver/DrvALC.h

Return Value

Version number :

31:24	23:16	15:8	7:0
00000000	MAJOR_NUM	MINOR_NUM	BUILD_NUM

2. Revision History

Version	Date	Description
1.00.01	Mar. 2011	Preliminary Automatic Level Control Driver User Guide of ISD9160