



# MT6357 Power Management IC Product Brief

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**The full datasheet is available with an NDA**

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## Version History

Version	Date	Description
1.0	2023-09-18	Official release

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# 1 Overview

## 1.1 Features

- Handles all IoT devices baseband power management
- Input range: 2.6V ~ 5V
- 5 buck converters and 29 LDOs optimized for specific IoT device subsystems
- Full-set high-quality audio feature: Supports uplink/downlink audio CODEC.
- SPI interface
- USB Battery Charging Specification version BC1.2 Compliance
- Over-current and thermal overload protection
- Programmable under voltage lockout protection
- Watchdog reset
- Flexibility hardware PMIC reset function
- Power-on reset and start-up timer
- Precision voltage, temperature, and current measurement fuel gauge
- 209-pin VFBGA package

## 1.2 Applications

MT6357 is ideal for power management of 2G, 3G and 4G smart phones, other portable systems, Industrial HMI, desktop POS, KIOSK and digital signage

## 1.3 General Descriptions

MT6357 is a power management system chip optimized for IoT devices, containing 5 buck converters and 29 LDOs optimized for specific IoT device subsystems.

Sophisticated controls are available for power-up, battery charging and the RTC alarm. MT6357 is optimized for maximum battery life, allowing the RTC circuit to stay alive without a battery for several hours.

MT6357 adopts SPI interface and two SRCLKEN control pins to control buck converters, LDOs, and various drivers; it provides enhanced safety control and protocol for handshaking with BB.

MT6357 is available in a 209-pin VFBGA package. The operating temperature ranges from -30 to +85°C.

## 1.4 Ordering Information

Table 1-1. Ordering information

Order #	Marking	Temp. range	Package
MT6357ARV/A		-30 ~ +85°C	VFBGA 209L

## 1.5 Pin Assignments and Descriptions

209	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
A	VPA	VSYS_VPA	VSYS_VPA	VSYS_VP ROC	GND_VP ROC	VPROC	VPROC	VSYS_VC ORE	VCORE	VCORE		GND_V MODEM	VSYS_V MODEM	VSYS_VS 1	GND_VS 1	VS1	VCAMIO	A
B	GND_SM PS	VSYS_S MPS	GND_VP A	VSYS_VP ROC	GND_VP ROC	VPROC	VPROC	VSYS_VC ORE	GND_VC ORE	VCORE	VMODE M	GND_V MODEM	VSYS_V MODEM	VSYS_VS 1	GND_VS 1	VS1	VIO18	B
C		VPROC_ FB		VSYS_VP ROC	GND_VP ROC	VPROC	VPROC	VSYS_VC ORE	GND_VC ORE	VCORE	VMODE M	GND_V MODEM					VS1_LD O1	C
D	AU_V18 N	GND_VP ROC_FB	VCORE_F B			D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	GND_V MODEM _FB		VRF18		D
E		FLYN	GND_VC ORE_FB	VPA_FB		D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	VMODE M_FB	VS1_FB	VCN18	VRF12	VCAMD	E
F	FLYP	AVSS18 AUD	AU_LOL N	AU_LOL P	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND		VS2_LD O1		VS2_LD O2	F
G		AVDD18 _AUD	AU_HPR		AU_HSN	AU_HSP	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND		VSYS_LD O1	VSRAM_ PROC	VSRAM_ OTHERS		G
H			AU_REF N		AVSS28 AUD	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND	D_GND			VEFUSE	VCAMA	VDRAM	H
J	HP_EINT	AU_HPL		AU_VIN2 _P	AU_VIN2 _N	D_GND	D_GND	D_GND	D_GND	DVSS18_ IO	D_GND			VUSB			VSIM1	J
K	AVDD28 _AUD		AU_VIN0 _P	AU_VIN0 _N	AU_VIN1 _P		VSYS_LD O3			DVDD18 _IO		D_GND	VCN28		VIO28	VSIM2		K
L			AU_MIC BIAS0		AU_VIN1 _N		VAUD28			DVDD18 _DIG		ISINK1		VFE28	VMC	VLDO28	VEMC	L
M	XTAL1	AVSS22_ XO	AU_MIC BIAS1	ACCDDET	EXT_PMI C_EN1	EXT_PMI C_PG	SPI_MOS I	SPI_CLK	SPI_MIS O	CHG_DM	CHG_DP		BATSNS	AUD_SY NC_MOS I		VIBR		M
N	XTAL2	AVSS22_ XO_ISO	UVLO_V TH	FCHR_EN B	EXT_PMI C_EN2		SRCLKEN _IN0	SRCLKEN _IN1	VSYSSENS			PCHRLD	ISENSE	AUD_DA T_MOSI1		VMCH	VSYS_LD O2	N
P	AVSS22_ XOBUF	AVSS22_ XO_ISO	XO_WC N		PMU_TE STMODE		AVSS18_ AUXADC		FSOURCE		RTC32K_ 2V8		VDRV	RTC32K_ 1V8_0	AUD_DA T_MOSI0	AUD_CL K_MOSI	VCN33	P
R	AVSS22_ XOBUF	XO_NFC	XO_SOC	PWRKEY	RESETB		AVDD18_ AUXADC	SPI_CSN	TREF	CS_N	CHRLDO	VRTC28	BATON		RTC32K_ 1V8_1	AUD_CL K_MISO	AUD_DA T_MISO1	R
T	XO_CEL	XO_EXT		VXO22	VAUX18		AUXADC_ VIN	WDTRST B_IN		CS_P	VCDT		GND_VR EF	VREF		AUD_SY NC_MIS O	AUD_DA T_MISO0	T
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	

Figure 1-1. MT6357 VFBGA 209 (7.0x6.6mm) pin assignment (top view)

Table 1-2. MT6357 pin descriptions

Ball	Symbol	I/O	Description
A4, B4, C4	VSYS_VPROC	PWR	Power supply of VPROC
A6, A7, B6, B7, C6, C7	VPROC	O	SW node of VPROC
A5, B5, C5	GND_VPROC	GND	VPROC ground
C2	VPROC_FB	I	BUCK VPROC feedback pin
D2	GND_VPROC_FB	I	Remote sense on ground of VPROC
A8, B8, C8	VSYS_VCORE	PWR	Power supply of VCORE
A9, A10, B10, C10	VCORE	O	SW node of VCORE
B9, C9	GND_VCORE	GND	VCORE ground
D3	VCORE_FB	I	BUCK VCORE feedback pin
E3	GND_VCORE_FB	I	Remote sense on ground of VCORE
A13, B13	VSYS_VMODEM	PWR	Power supply of VMODEM
B11, C11	VMODEM	O	SW node of VMODEM
A12, B12, C12	GND_VMODEM	GND	VMODEM ground
E13	VMODEM_FB	I	BUCK VMODEM feedback pin on Vout
D14	GND_VMODEM_FB	I	Remote sense on ground of VMODEM Vout
A14, B14	VSYS_VS1	PWR	Power supply of VS1
A16, B16	VS1	O	SW node of VS1
A15, B15	GND_VS1	GND	VS1 ground
E14	VS1_FB	I	BUCK VS1 feedback pin
A2, A3	VSYS_VPA	PWR	Power supply of VPA
A1	VPA	O	SW node of VPA
B3	GND_VPA	GND	VPA ground
E4	VPA_FB	I	BUCK VPA feedback pin on Vout
B2	VSYS_SMPS	PWR	Power supply of buck controller
B1	GND_SMPS	GND	GND of buck controller
L14	VFE28	O	VFE28 output voltage
K13	VCN28	O	VCN28 output voltage
H16	VCAMA	O	VCAMA output voltage
R9	TREF	O	TREF output voltage
T4	VXO22	O	VXO22 output voltage
L7	VAUD28	O	VAUD28 output voltage
T5	VAUX18	O	VAUX18 output voltage
P17	VCN33	O	VCN33 output voltage
J17	VSIM1	O	VSIM1 output voltage
K16	VSIM2	O	VSIM2 output voltage
L16	VLDO28	O	VLDO28 output voltage
K15	VIO28	O	VIO28 output voltage
L15	VMC	O	VMC output voltage
N16	VMCH	O	VMCH output voltage
L17	VEMC	O	VEMC33 output voltage
M16	VIBR	O	VIBR output voltage
J14	VUSB	O	VUSB output voltage

Ball	Symbol	I/O	Description
A17	VCAMIO	O	VCAMIO output voltage
E15	VCN18	O	VCN18 output voltage
D16	VRF18	O	VRF18 output voltage
B17	VIO18	O	VIO18 output voltage
H15	VEFUSE	O	VEFUSE output voltage
E17	VCAMD	O	VCAMD output voltage
E16	VRF12	O	VRF12 output voltage
G15	VSRAM_PROC	O	VSRAM_PROC output voltage
G16	VSRAM_OTHERS	O	VSRAM_OTHERS output voltage
H17	VDRAM	O	VDRAM output voltage
C17	VS1_LDO1	PWR	2V power supply of SLDO1
F15	VS2_LDO1	PWR	Power supply of SLDO1
F17	VS2_LDO2	PWR	Power supply of SLDO2
G14	VSYS_LDO1	PWR	Power supply input of LDO group1
N17	VSYS_LDO2	PWR	Power supply input of LDO group2
K7	VSYS_LDO3	PWR	Power supply input of LDO group3
N4	FCHR_ENB	I	Force charging disable pin (merged with HOMEKEY, same as MT6351)
N13	ISENSE	I	Positive terminal for battery's charging current sensing resistor
M13	BATSNS	I	Negative terminal for battery's charging current sensing resistor
N9	VSYSNS	I	VSYS supply input for internal block and UVLO detection
R13	BATON	I	Battery NTC pin for battery and its temperature sensing
T11	VCDT	I	Fractional charger input voltage for charger detection
P13	VDRV	O	Charger current drive output
R11	CHRLDO	O	CHRLDO output voltage
M10	CHG_DM	I	USB D- for BC1.2 standard
M11	CHG_DP	I	USB D+ for BC1.2 standard
N12	PCHR_LED	I	Pre-Charge Indicator
N3	UVLO_VTH	I	UVLO threshold control pin
T14	VREF	O	Bandgap reference voltage
T13	GND_VREF	GND	Ground for bandgap
P11	RTC32K_2V8	O	VRTC domain 32kHz clock output
R12	VRTC28	O	RTC LDO output. Supply of RTC macro where backup battery can be added.
R4	PWRKEY	I	PWRKEY button
R5	RESETB	O	System reset release signal
P5	PMU_TESTMODE	I	PMU test mode signal (tied to GND in normal operation)
M5	EXT_PMIC_EN1	O	Ext chip enable pin1
N5	EXT_PMIC_EN2	O	Ext chip enable pin2
M6	EXT_PMIC_PG	I	Ext chip enable PGOOD Detect

Ball	Symbol	I/O	Description
R10	CS_N	I	Fuel gauge ADC input pin
T10	CS_P	I	Fuel gauge ADC input pin
R7	AVDD18_AUXADC	PWR	1.8V power supply of AUXADC
P7	AVSS18_AUXADC	GND	AUXADC ground
T7	AUXADC_VIN	I	AUXADC input
P16	AUD_CLK_MOSI	I	Audio control interface
P15	AUD_DAT_MOSIO	I/O	Audio control interface
N14	AUD_DAT_MOSI1	I/O	Audio control interface
M14	AUD_SYNC_MOSI	I/O	Audio control interface
R16	AUD_CLK_MISO	O	Audio control interface
T17	AUD_DAT_MISO0	I/O	Audio control interface
R17	AUD_DAT_MISO1	I/O	Audio control interface
T16	AUD_SYNC_MISO	I/O	Audio control interface
M8	SPI_CLK	I	SPI control interface
R8	SPI_CSN	I/O	SPI control interface
M9	SPI_MISO	I/O	SPI control interface
M7	SPI_MOSI	I/O	SPI control interface
T8	WDTRSTB_IN	I	Watchdog reset from AP
N7	SRCLKEN_IN0	I	Source clock enable pin 0
N8	SRCLKEN_IN1	I	Source clock enable pin 1
L10	DVDD18_DIG	PWR	VDIG18 output voltage
K10	DVDD18_IO	PWR	Digital IO power
J10	DVSS18_IO	GND	Digital IO power GND
P14	RTC32K_1V8_0	O	VIO18 domain 32kHz clock output
R15	RTC32K_1V8_1	O	VIO18 domain 32kHz clock output
P9	FSOURCE	PWR	EFUSE power source
G3	AU_HPR	O	Earphone right channel output
J2	AU_HPL	O	Earphone left channel output
H3	AU_REFN	GND	Audio reference ground
G5	AU_HSN	O	Handset negative output
G6	AU_HSP	O	Handset positive output
F4	AU_LOLP	O	Lineout positive output
F3	AU_LOLN	O	Lineout negative output
M4	ACCDET	I	Accessory detection input
L3	AU_MICBIAS0	O	Microphone Bias 0
M3	AU_MICBIAS1	O	Microphone Bias 1
K3	AU_VIN0_P	I	Microphone channel 0 positive input
K4	AU_VIN0_N	I	Microphone channel 0 negative input
K5	AU_VIN1_P	I	Microphone channel 1 positive input
L5	AU_VIN1_N	I	Microphone channel 1 negative input
J4	AU_VIN2_P	I	Microphone channel 2 positive input
J5	AU_VIN2_N	I	Microphone channel 2 negative input
J1	HP_EINT	I	HPL detection

Ball	Symbol	I/O	Description
G2	AVDD18_AUD	PWR	1.8V power supply of audio
F2	AVSS18_AUD	GND	Audio DL ground
F1	FLYP	O	Flying capacitor top
E2	FLYN	O	Flying capacitor bottom
D1	AU_V18N	PWR	Audio -1.8V supply
K1	AVDD28_AUD	PWR	Power supply of Audio UL
H5	AVSS28_AUD	GND	Audio UL ground
L12	ISINK1	I	ISINK channel 1
P1, R1	AVSS22_XOBUF	GND	Ground for XO
P3	XO_WCN	O	26MHz output to Conn. RF
T1	XO_CEL	O	26MHz output to Cell. RF
R2	XO_NFC	O	26MHz output to NFC
R3	XO_SOC	O	26MHz output to SOC
T2	XO_EXT	O	26MHz output to UFS
M2	AVSS22_XO	GND	Ground for XO
M1	XTAL1	I/O	XTAL input 1
N1	XTAL2	I/O	XTAL input 2
N2, P2	AVSS22_XO_ISO	GND	Connect to GSUB for DCXO noise isolation
D6, D7, D8, D9, D10, D11, D12, D13, E6, E7, E8, E9, E10, E11, E12, F5, F6, F7, F8, F9, F10, F11, F12, F13, G7, G8, G9, G10, G11, G12, H6, H7, H8, H9, H10, H11, H12, J6, J7, J8, J9, J11, K12	D_GND	GND	Ground

## 2 Electrical Characteristics

### 2.1 Absolute Maximum Ratings over Operating Free-Air Temperature Range

Stresses beyond those listed in Table 2-1 may cause permanent damage to the device. These numbers are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect the device reliability.

**Table 2-1. Absolute maximum ratings**

Parameter	Conditions	Min.	Typical	Max.	Unit
Free-air temperature range		-40		85	°C
Storage temperature range		-65		150	°C
Battery pin input voltage range <sup>(1)</sup>	Steady state	-0.5		6	V
	Transient (< 10ms)	-0.5		7	V
Non-battery power pin <sup>(2)</sup>	Steady state	-0.5		5	V
Signal pins <sup>(3)</sup>	Steady state	-0.5		V <sub>xx</sub> +0.5 <sup>(3)</sup>	V
ESD robustness	HBM	2,000			V
Charger input withstand				30	V

(1) Note 1 VSYS\_XXX/Vxxx (BUCK SW node)/BATSNS/ISENSE/VSYSNS → battery input pin

(2) Note 2 Non-battery power pin → reference Table 1-1 (PWR pin but not connected with battery)

(3) Note 3 V<sub>xx</sub> = max. operating voltage (refer to Table 2-2).

### 2.2 Thermal Characteristics

**Table 2-2. Thermal characteristics**

Parameter	Conditions	Min.	Typical	Max.	Unit
Thermal resistance from junction to ambient	In free air		51.8		°C/W

Note. The device is mounted on an 8-metal-layer PCB and modeled per JEDEC51-9 condition.

## 2.3 Pin Voltage Range

The table below lists operation rang voltages for all MT6357 I/O pins.

**Table 2-3. Pin voltage range**

Ball	Symbol	Voltage range	Unit
A4, B4, C4	VSYS_VPROC	0~5.0	v
A6, A7, B6, B7, C6, C7	VPROC	0~5.0	v
A5, B5, C5	GND_VPROC	0	v
C2	VPROC_FB	0~5.0	v
D2	GND_VPROC_FB	0	v
A8, B8, C8	VSYS_VCORE	0~5.0	v
A9, A10, B10, C10	VCORE	0~5.0	v
B9, C9	GND_VCORE	0	v
D3	VCORE_FB	0~5.0	v
E3	GND_VCORE_FB	0	v
A13, B13	VSYS_VMODEM	0~5.0	v
B11, C11	VMODEM	0~5.0	v
A12, B12, C12	GND_VMODEM	0	v
E13	VMODEM_FB	0~5.0	v
D14	GND_VMODEM_FB	0	v
A14, B14	VSYS_VS1	0~5.0	v
A16, B16	VS1	0~5.0	v
A15, B15	GND_VS1	0	v
E14	VS1_FB	0~5.0	v
A2, A3	VSYS_VPA	0~5.0	v
A1	VPA	0~5.0	v
B3	GND_VPA	0	v
E4	VPA_FB	0~5.0	v
B2	VSYS_SMPS	0~5.0	v
B1	GND_SMPS	0	v
L14	VFE28	0~5.0	v
K13	VCN28	0~5.0	v
H16	VCAMA	0~5.0	v
R9	TREF	0~1.98	v
T4	VXO22	0~2.42	v
L7	VAUD28	0~5.0	v
T5	VAUX18	0~2.2	v
P17	VCN33	0~5.0	v
J17	VSIM1	0~5.0	v
K16	VSIM2	0~5.0	v
L16	VLDO28	0~5.0	v
K15	VIO28	0~5.0	v
L15	VMC	0~5.0	v
N16	VMCH	0~5.0	v
L17	VEMC	0~5.0	v
M16	VIBR	0~5.0	v

Ball	Symbol	Voltage range	Unit
J14	VUSB	0~3.63	v
A17	VCAMIO	0~2.2	v
E15	VCN18	0~2.2	v
D16	VRF18	0~2.2	v
B17	VIO18	0~2.2	v
H15	VEFUSE	0~2.2	v
E17	VCAMD	0~2.2	v
E16	VRF12	0~2.2	v
G15	VSRAM_PROC	0~1.4	v
G16	VSRAM_OTHERS	0~1.4	v
H17	VDRAM	0~2.2	v
C17	VS1_LDO1	0~2.2	v
F15	VS2_LDO1	0~2.2	v
F17	VS2_LDO2	0~2.2	v
G14	VSYS_LDO1	0~5.0	v
N17	VSYS_LDO2	0~5.0	v
K7	VSYS_LDO3	0~5.0	v
N4	FCHR_ENB	0~5.0	v
N13	ISENSE	0~5.0	v
M13	BATSNS	0~5.0	v
N9	VSYSNS	0~5.0	v
R13	BATON	0~1.98	v
T11	VCDT	0~3.3	v
P13	VDRV	0~5.0	v
R11	CHRLDO	0~3.08	v
M10	CHG_DM	0~3.3	v
M11	CHG_DP	0~3.3	v
N12	PCHR_LED	0~5.0	v
N3	UVLO_VTH	0~3.3	v
T14	VREF	0~1.32	v
T13	GND_VREF	0	v
P11	RTC32K_2V8	0~2.98	v
R12	VRTC28	0~2.98	v
R4	PWRKEY	0~5.0	v
R5	RESETB	0~1.98	v
P5	PMU_TESTMODE	0~5.0	v
M5	EXT_PMIC_EN1	0~5.0	v
N5	EXT_PMIC_EN2	0~5.0	v
M6	EXT_PMIC_PG	0~5.0	v
R10	CS_N	-0.1~0.1	v
T10	CS_P	-0.1~0.1	v
R7	AVDD18_AUXADC	0~1.9	v
P7	AVSS18_AUXADC	0	v
T7	AUXADC_VIN	0~1.9	v
P16	AUD_CLK_MOSI	0~1.98	v
P15	AUD_DAT_MOSI0	0~1.98	v
N14	AUD_DAT_MOSI1	0~1.98	v

Ball	Symbol	Voltage range	Unit
M14	AUD_SYNC_MOSI	0~1.98	v
R16	AUD_CLK_MISO	0~1.98	v
T17	AUD_DAT_MISO0	0~1.98	v
R17	AUD_DAT_MISO1	0~1.98	v
T16	AUD_SYNC_MISO	0~1.98	v
M8	SPI_CLK	0~1.98	v
R8	SPI_CSN	0~1.98	v
M9	SPI_MISO	0~1.98	v
M7	SPI_MOSI	0~1.98	v
T8	WDTRSTB_IN	0~1.98	v
N7	SRCLKEN_IN0	0~1.98	v
N8	SRCLKEN_IN1	0~1.98	v
L10	DVDD18_DIG	0~1.98	v
K10	DVDD18_IO	0~1.98	v
J10	DVSS18_IO	0	v
P14	RTC32K_1V8_0	0~1.98	v
R15	RTC32K_1V8_1	0~1.98	v
P9	FSOURCE	0~1.98	v
G3	AU_HPR	-1.98~1.98	v
J2	AU_HPL	-1.98~1.98	v
H3	AU_REFN	0	v
G5	AU_HSN	-1.98~1.98	v
G6	AU_HSP	-1.98~1.98	v
F4	AU_LOLP	-1.98~1.98	v
F3	AU_LOLN	-1.98~1.98	v
M4	ACCDET	0 ~ 2.94	v
L3	AU_MICBIAS0	0 ~ 2.94	v
M3	AU_MICBIAS1	0 ~ 2.94	v
K3	AU_VIN0_P	0 ~ 2.94	v
K4	AU_VIN0_N	0 ~ 2.94	v
K5	AU_VIN1_P	0 ~ 2.94	v
L5	AU_VIN1_N	0 ~ 2.94	v
J4	AU_VIN2_P	0 ~ 2.94	v
J5	AU_VIN2_N	0 ~ 2.94	v
J1	HP_EINT	0 ~ 2.94	v
G2	AVDD18_AUD	0~1.98	v
F2	AVSS18_AUD	0	v
F1	FLYP	0~1.98	v
E2	FLYN	-1.98~0	v
D1	AU_V18N	-1.98~0	v
K1	AVDD28_AUD	0~2.94	v
H5	AVSS28_AUD	0	v
L12	ISINK1	0~5.0	v
P1, R1	AVSS22_XOBUF	0	v
P3	XO_WCN	0~1.98	v
T1	XO_CEL	0~1.98	v
R2	XO_NFC	0~1.21	v

Ball	Symbol	Voltage range	Unit
R3	XO_SOC	0~1.21	v
T2	XO_EXT	0~1.21	v
M2	AVSS22_XO	0	v
M1	XTAL1	-0.2~2.2	v
N1	XTAL2	0.1~2.0	v
N2, P2	AVSS22_XO_ISO	0	v
D6, D7, D8, D9, D10, D11, D12, D13, E6, E7, E8, E9, E10, E11, E12, F5, F6, F7, F8, F9, F10, F11, F12, F13, G7, G8, G9, G10, G11, G12, H6, H7, H8, H9, H10, H11, H12, J6, J7, J8, J9, J11, K12	D_GND	0	v

## 2.4 Recommended Operating Range

**Table 2-4. Operation condition**

Parameter	Conditions	Min.	Typical	Max.	Unit
Ambient temperature (TA)		-30		85	°C
Junction temperature (TJ)		-30		125	°C
Operating input voltage		3.15 <sup>(1)</sup>		5	V

(1) Note 1 This minimum input voltage still needs to check the detailed test conditions for each function in specification table.

## 2.5 Electrical Characteristics

VBAT = 2.6V ~ 5V, minimum loads applied on all outputs, unless otherwise noted.

Typical values are at  $T_A = 25^{\circ}\text{C}$ .

**Table 2-5. General electrical specifications**

Parameter	Conditions	Min.	Typical	Max.	Unit
<b>Operation Ground Current</b>					
Standby without 32K XTAL	Low-power mode		560	640	$\mu\text{A}$
Power down leakage current without 32K XTAL	VBAT=4.5V, Temp=25°C			80	$\mu\text{A}$
<b>Under Voltage (UV)</b>					
Under voltage falling threshold		2.55	2.6	2.65	V
Under voltage rising threshold (UVLO_VTHH) w/o charger	R=200K	2.95	3.0	3.05	V
Under voltage rising threshold (UVLO_VTHH) w/i charger	R=200K	2.75	2.8	2.85	V
<b>Reset Generator</b>					
Output high		VIO-0.4			V
Output low				0.2	V
<b>PWRKEY/FCHR_ENB</b>					
High voltage		0.7*VBAT			V
Low voltage				0.3*VBAT	V
De-bounce time			32		ms
<b>Control Input Voltage</b>					
Control input high (SPI, SRCLKEN related)		0.7*VIO			V
Control input low (SPI, SRCLKEN related)				0.3*VIO	V
<b>Thermal Shut-down</b>					
PMIC shut-down threshold			150		$^{\circ}\text{C}$
Shut-down release threshold			110		$^{\circ}\text{C}$

## 3 MT6357 Packaging

### 3.1 Package Dimensions

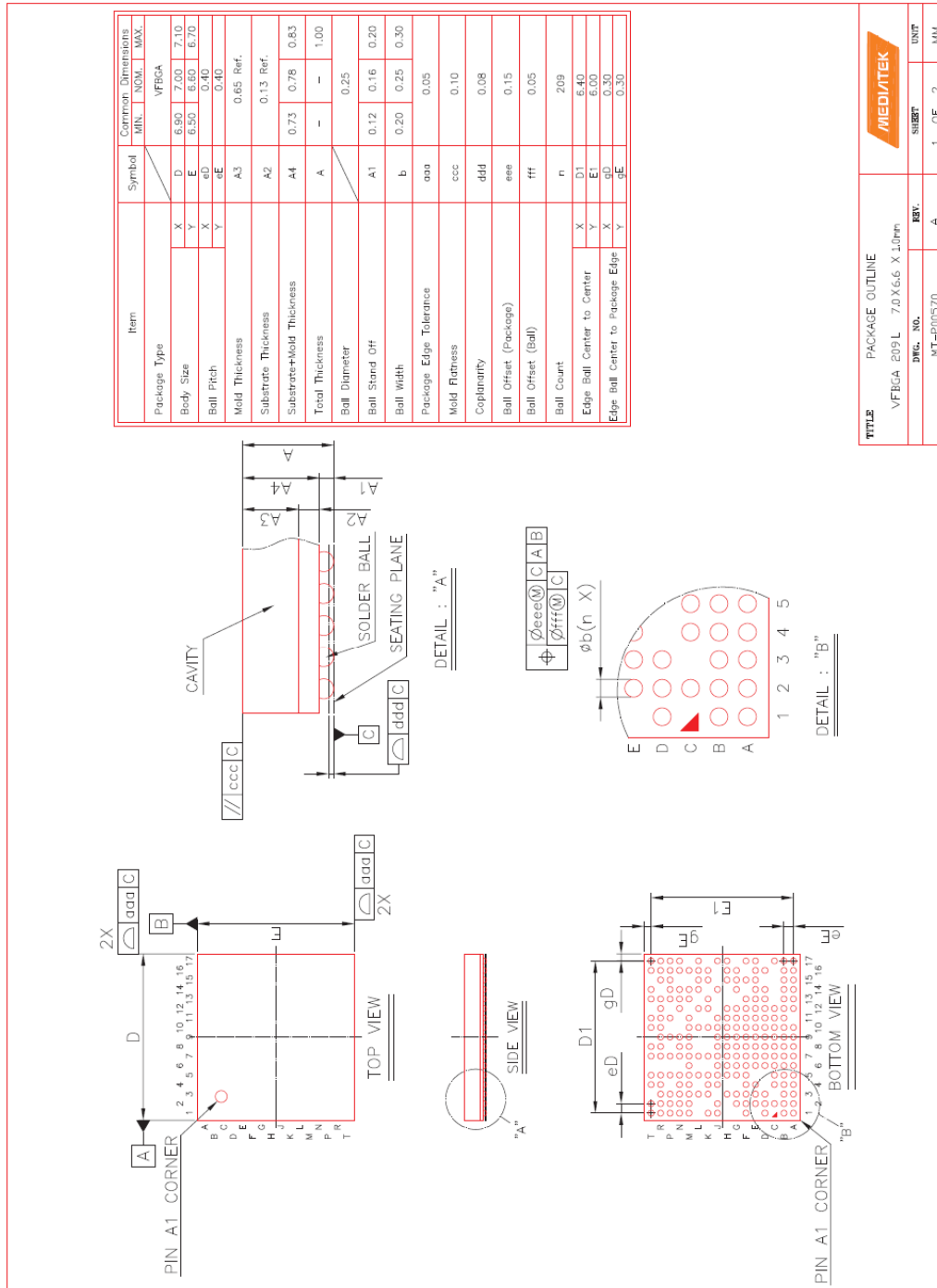


Figure 3-1. Package dimension

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