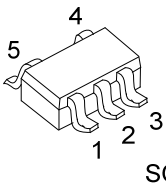
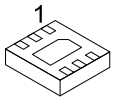
HIGH PSRR, LOW DROPOUT, 400mA ADJUSTABLE LDO REGULATOR



SOT-25
(JEDEC MO-178)



DFN2020-6

■ DESCRIPTION

The UTC **LR1143** is a CMOS-based 400mA voltage regulator with low supply current, low dropout, adjustable output voltage, The device offering high PSRR and low dropout. The quiescent current is as low as 35μA, further prolonging the battery life. The UTC **LR1143** also works with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications, critical in handheld wireless devices.

The UTC **LR1143** consumes typical 0.7μA in shutdown mode. The other features include low dropout voltage, high output accuracy, current limit protection, and enable/shutdown control.

■ FEATURES

* Wide operating voltage range : 3.0V~5.5V
* Adjustable output voltage
* Enable/shutdown control
* Low-noise for RF application
* Ultra-Fast response in line/load transient
* Current limit protection
* Output only 1μF capacitor required for stability
* High power supply rejection ratio

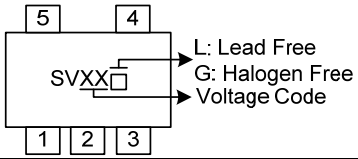
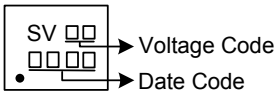
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
LR1143L-xx-AF5-R	LR1143G-xx-AF5-R	SOT-25	Tape Reel
LR1143L-xx-K06-2020-R	LR1143G-xx-K06-2020-R	DFN2020-6	Tape Reel

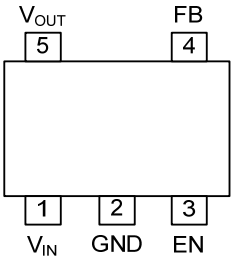
Note: xx: Output Voltage, refer to Marking Information.

LR1143G-xx-AF5-R (1)Packing Type (2)Package Type (3)Output Voltage Code (4)Green Package	(1) R: Tape Reel (2) AF5: SOT-25, K06-2020: DFN2020-6 (3) xx: refer to Marking Information (4) G: Halogen Free and Lead Free, L: Lead Free

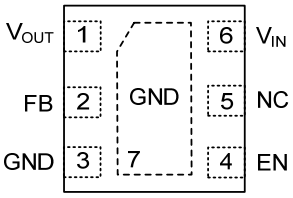
■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-25	AD: ADJ	
DFN2020-6		

■ PIN CONFIGURATION



SOT-25

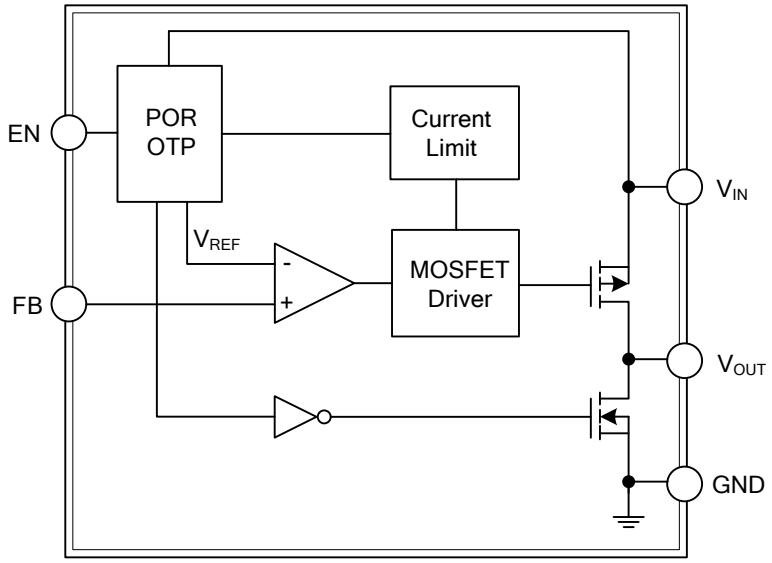


DFN2020-6
(Top View)

■ PIN DESCRIPTION

PIN NO.		PIN NAME	DESCRIPTION
SOT-25	DFN2020-6		
1	6	V_{IN}	Voltage Input.
2	3, 7	GND	Ground.
3	4	EN	Chip Enable (Active High).
4	2	FB	Output Voltage Feedback.
5	1	V_{OUT}	Voltage Output.
-	5	NC	No Connection

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Input Voltage		V_{IN}	6	V
EN Input Voltage			6	V
Power Dissipation (T_A=25°C)	SOT-25	P_D	300	mW
	DFN2020-6		950 (Note 2)	mW
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-65 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. The data tested by surface mounted on a 2 inch2 FR-4 board with 2OZ copper.

■ RECOMMENDED OPERATING CONDITIONS (Note 3)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Ambient Temperature Range	T_A	-20		+85	°C

Note: The device is not guaranteed to function outside its operating conditions.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-25	θ_{JA}	333	°C/W
	DFN2020-6		105	°C/W

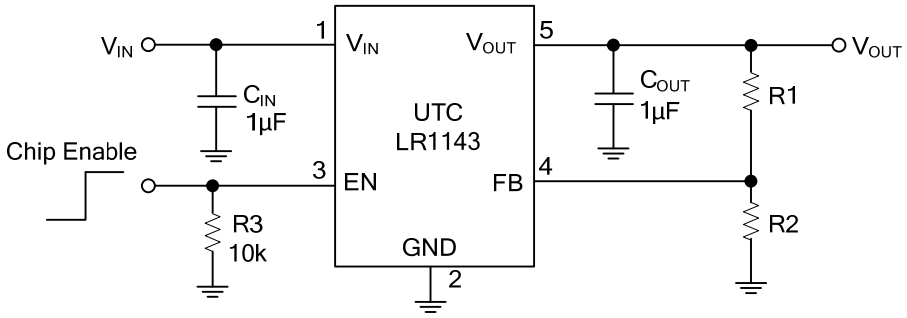
Note: θ_{JA} is measured in the natural convection at T_A=25°C on a low effective thermal conductivity test board of JEDEC 51-3 thermal measurement standard.

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=3.7V,T_A=25°C, C_{IN}=C_{OUT}=1μF, I_{OUT}=20mA, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage Range		V_{IN}		3.0		5.5	V
Reference Voltage		V_{REF}		1.188	1.200	1.212	V
Quiescent Current		I_Q	I_{OUT}=0mA		35	50	μA
Shutdown Current		I_{SHDN}	V_{EN}=0V		0.7	1.5	μA
Current Limit		I_{LIM}	3.0V≤V_{IN}< 5.5V	400	650		mA
Dropout Voltage		V_{DROP}	I_{OUT}=400mA		800		mV
Load Regulation		ΔV_{LOAD}	1mA< I_{OUT}<400mA 3.0V ≤ V_{IN}<5.5V			1	%
Line Regulation		ΔV_{LINE}	V_{IN}=(V_{OUT} + 0.5V)~5.5V, I_{OUT}=1mA		0.01	0.2	%/V
EN Threshold	Logic-Low Voltage	V_{IL}		0		0.6	V
	Logic-High Voltage	V_{IH}		1.6		5.5	V
EN Pin Current		I_{EN}			0.1	1	μA
FB Pin Current		I_{FB}			0.1	1	μA
Power Supply Rejection Ratio		PSRR	f=1kHz, I_{OUT}=10mA		67		dB
			f=10kHz, I_{OUT}=10mA		56		dB
Output Noise Voltage		V_{ON}	V_{OUT}=1.5V, C_{OUT}=1μF, I_{OUT}=0mA		30		μV_{RMS}

■ TYPICAL APPLICATION CIRCUIT



$$V_{OUT} = V_{REF}\left(1+\frac{R1}{R2}\right)$$