



UR6515C

LINEAR INTEGRATED CIRCUIT

2A DDR BUS TERMINATION REGULATOR

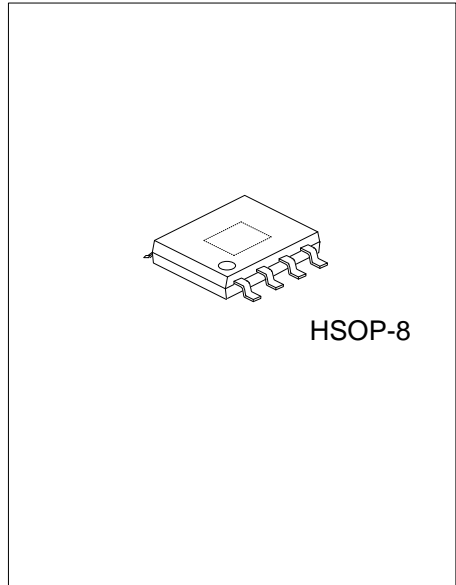
DESCRIPTION

The **UR6515C** is a linear regulator providing up to 2A transient peak current sourcing and sinking capability for DDR SDRAM bus terminator applications while regulating an output voltage to within 40mV. It contains a high speed operational amplifier which provides fast load transient response and only requires 10uF of ceramic output capacitance.

The **UR6515C** output termination voltage tracks the reference voltage applied at V_{REF} pin. A resistor divider connected to V_{IN} , GND and V_{REF} pins is used to force the reference voltage to V_{REF} pin. Additional features include current limiting protection and thermal shutdown protection.

FEATURES

- * DDR1/ DDR2/DDR3 termination voltage applications
- * Sink and Source Current
2A Continuous Current
- * Adjustable output voltage by external resistors
- * Integrated power MOS devices
- * Suspend to RAM(STR) functionality
- * Current Limiting Protection
- * Thermal Shutdown Protection
- * Cost-effective and easy to use

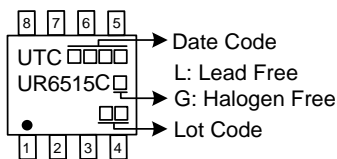


ORDERING INFORMATION

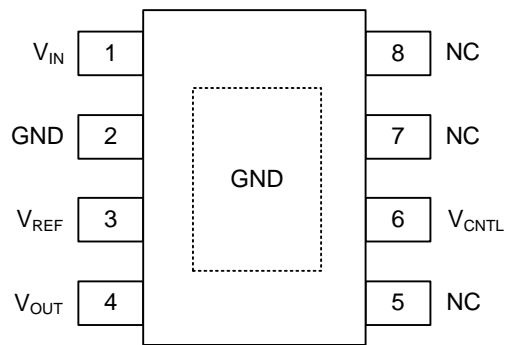
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UR6515CG-SH2-R	UR6515CG-SH2-R	HSOP-8	Tape Reel

<p>UR6515CG-SH2-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) SH2: HSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



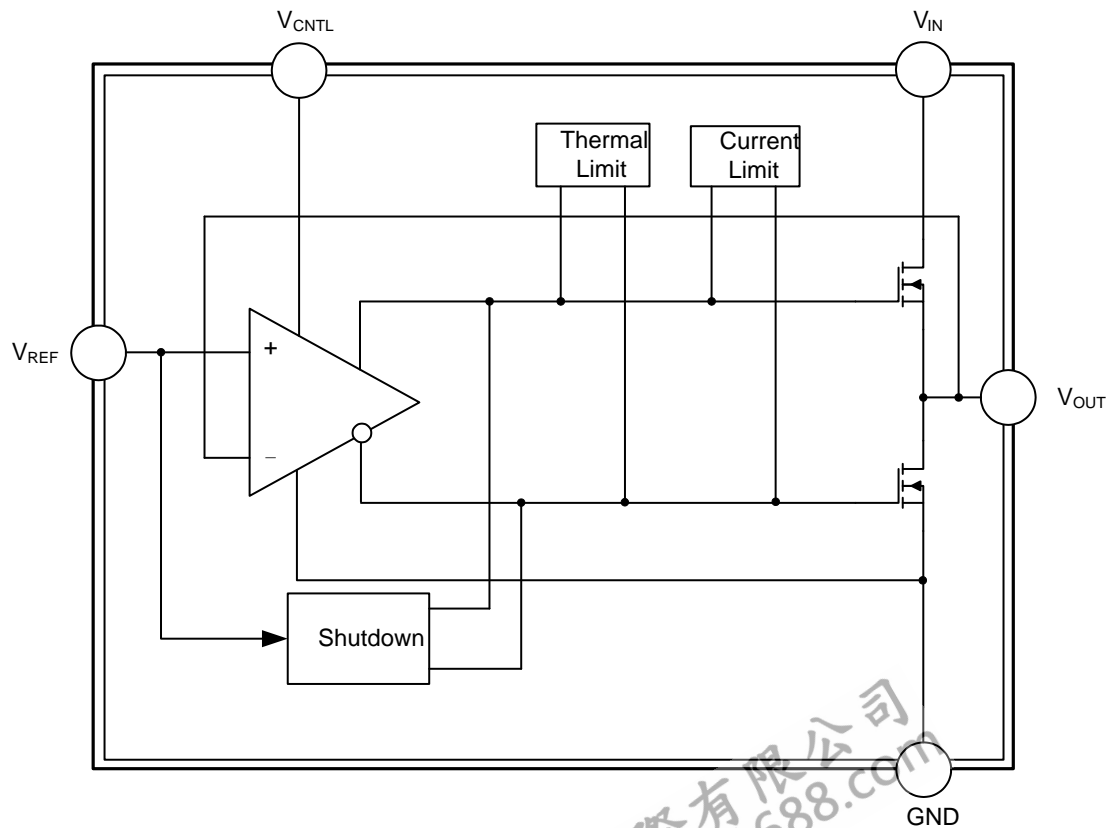
■ PIN CONFIGURATIONS



■ PIN DESCRIPTION

PIN NAME	PIN TYPE	PIN DESCRIPTION
V_{CNTL}	I	Power supply pin for the internal control circuits
GND	-	Ground pin
V_{IN}	I	Power supply pin for the V_{OUT} output
V_{REF}	I	Reference voltage input and active-low shutdown control pin
V_{OUT}	O	Output voltage pin

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
V _{CNTL} Control Voltage	V _{CNTL}	+6	V
V _{IN} Supply Voltage	V _{IN}	+6	V
Power Dissipation (T _A =25°C)	P _D	1.33	W
Junction Temperature	T _J	+125	°C
Storage Temperature	T _{STG}	-65 ~ +150	°C

Note: 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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 1)	θ_{JA}	75	°C/W
Junction to Case	θ_{JC}	28	°C/W

Note: θ_{JA} is measured in the natural convection at T_A = 25°C on a high effective thermal conductivity test board of JEDEC 51-7 thermal measurement standard.

■ RECOMMENDED OPERATING CONDITIONS (Note 1)

PARAMETER	SYMBOL	RATINGS	UNIT
V _{CNTL} Control Voltage	V _{CNTL}	5 or 3.3±5%	V
V _{IN} Supply Voltage	V _{IN}	2.5 ~ 1.5±3%	V
V _{REF} Input Voltage	V _{REF}	1.25 ~ 0.75±3%	V
Junction Temperature	T _J	-40 ~ +125	°C

Notes: 1. All voltage values are with respect to the network ground terminal unless otherwise noted.

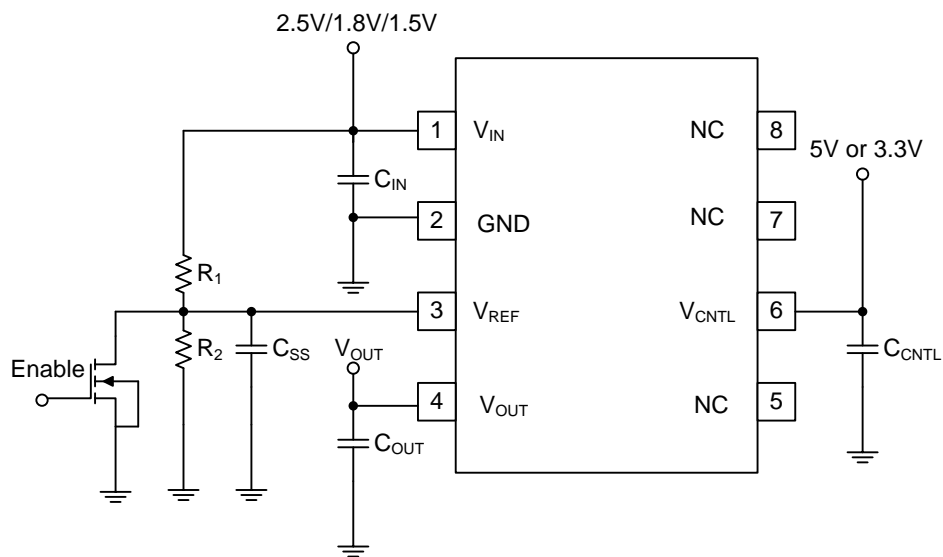
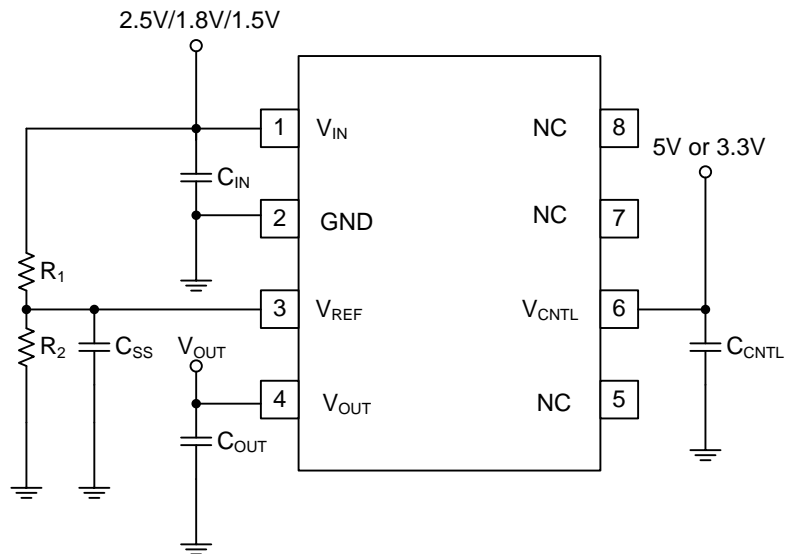
2. The V_{OUT} tracks the V_{REF} with additional voltage offset and load regulation.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

(V_{IN}=2.5V/1.8V/1.5V, V_{CNTL}=3.3V, V_{REF}=1.25V/0.9V/0.75V, C_{OUT} = 10μF (Ceramic))

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT CURRENT						
Operation Current of V _{CNTL}	I _{CNTL}	I _{OUT} = 0A		1	2.5	mA
Standby Current	I _{STB}	V _{REF} < 0.2V, R _{LOAD} = 180Ω		50	90	μA
OUTPUT VOLTAGE (DDR/DDR II/DDR III)						
Output Voltage Offset (V _{REF} -V _{OUT})	V _{OS}	I _{OUT} = 0A	-20		20	mV
Load Regulation	ΔV _{LOAD}	I _{OUT} = ±2A	-20		20	mV
PROTECTION						
Current Limit	I _{LIMIT}	V _{IN} = 2.5V/1.8V/1.5V	2.2			A
Thermal Shutdown Temperature	T _{SD}	V _{CNTL} = 3.3V~5V	125	170		°C
Thermal Shutdown Hysteresis	ΔT _{SD}	V _{CNTL} = 3.3V~5V		35		°C
V_{REF} Shutdown						
Shutdown Threshold	V _{IH}	Enable	0.6			V
	V _{IL}	Shutdown			0.2	V

■ TYPICAL APPLICATIONS CIRCUITS

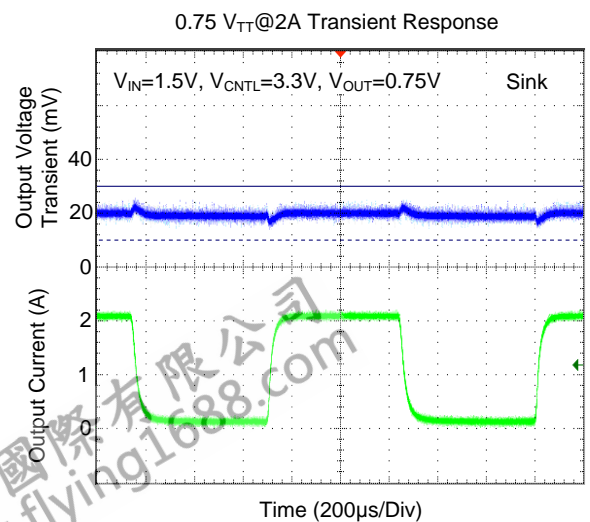
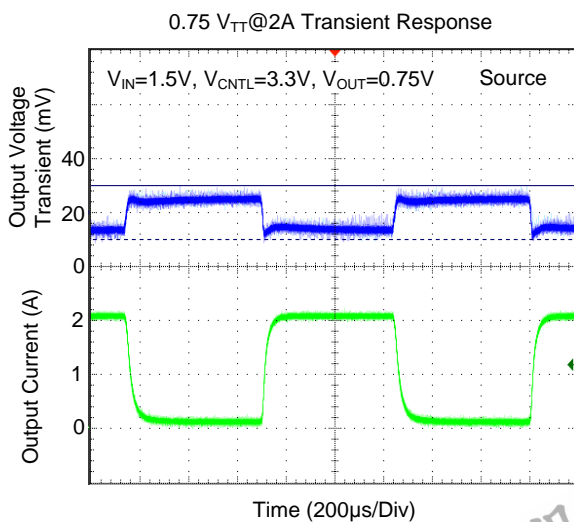
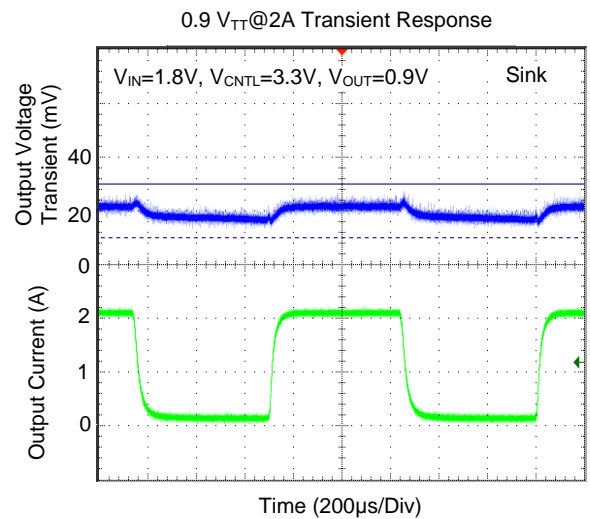
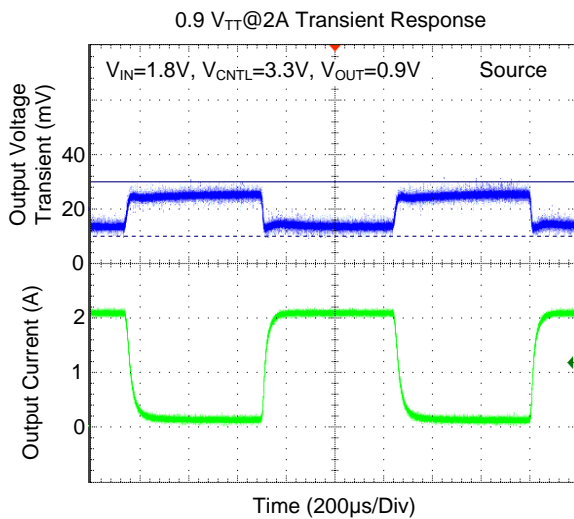
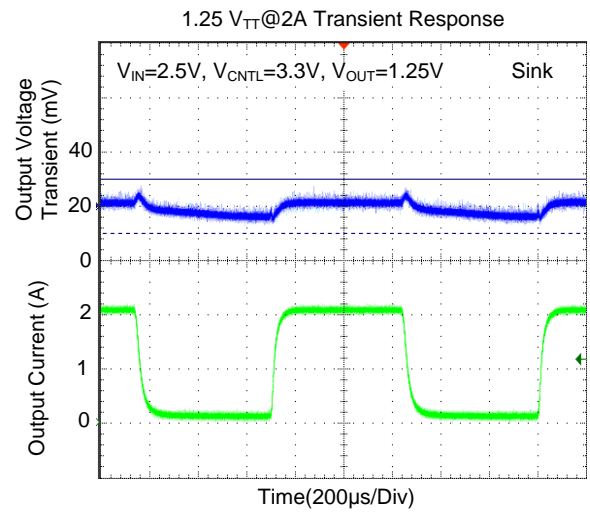
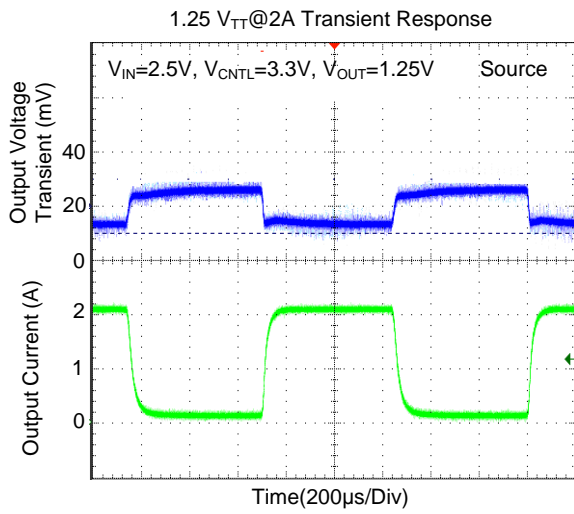


$R_1=R_2=100K\Omega$, $C_{OUT}=10\mu F(\text{Ceramic})+1000\mu F$ under the worst case testing condition

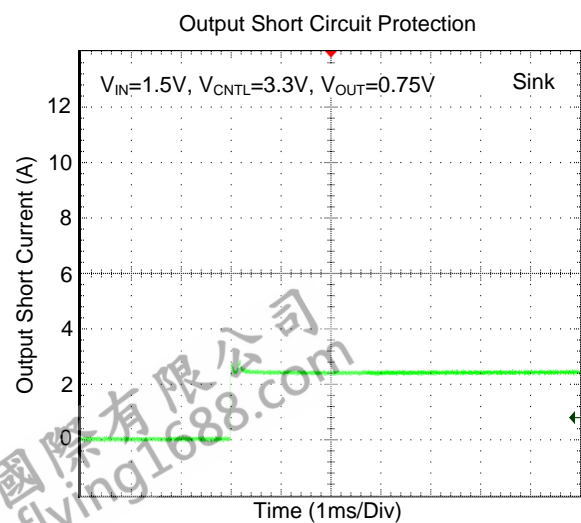
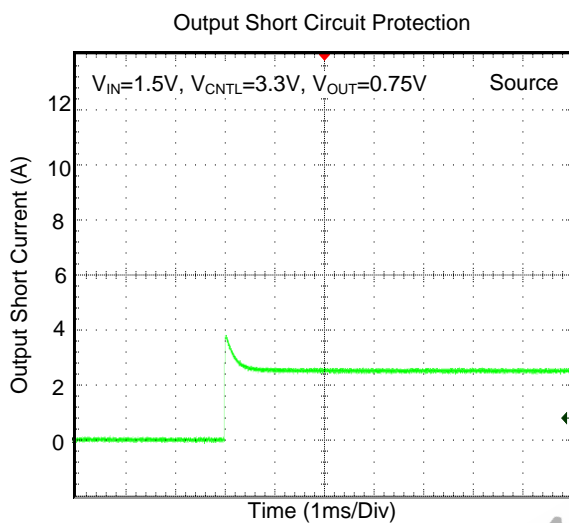
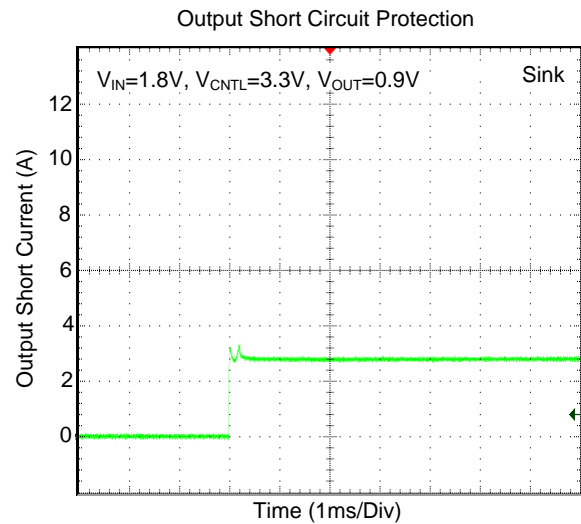
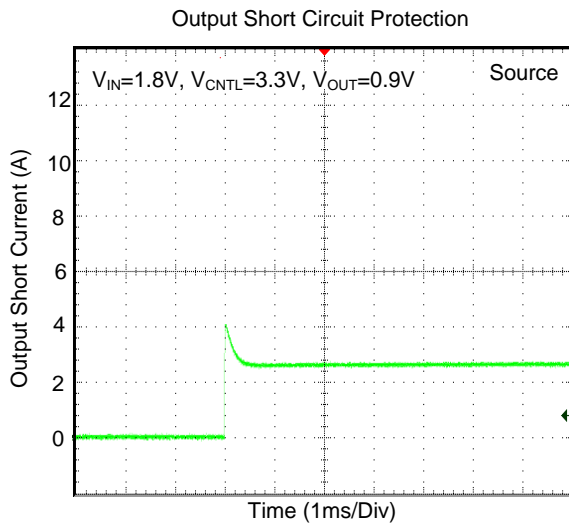
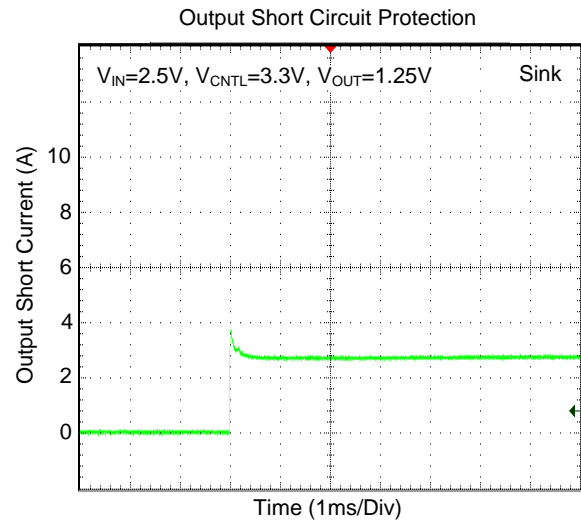
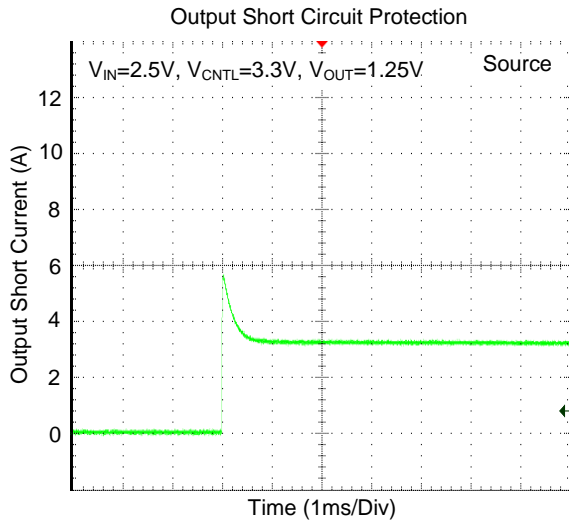
$C_{SS}=1\mu F$, $C_{IN}=470\mu F(\text{Low ESR})$, $C_{CTRL}=47\mu F$

$$V_{REF} = \frac{R_2}{R_1+R_2} V_{IN}(V), V_{OUT} \text{ track } V_{REF}$$

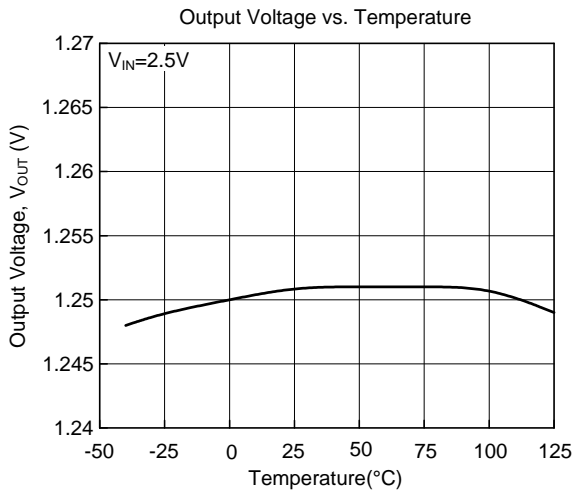
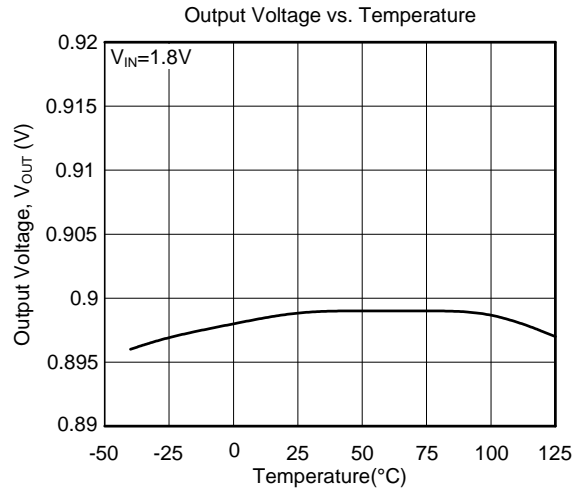
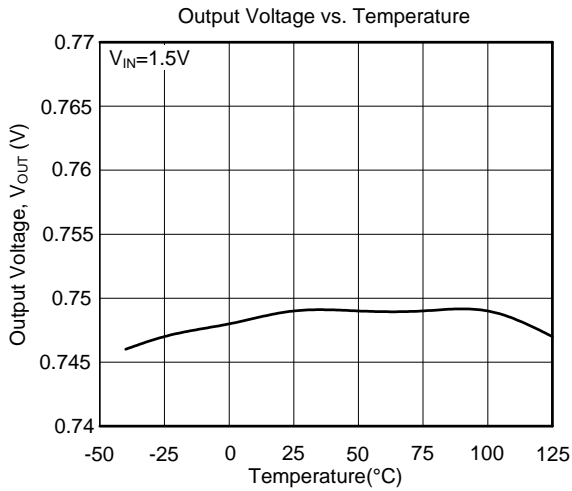
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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