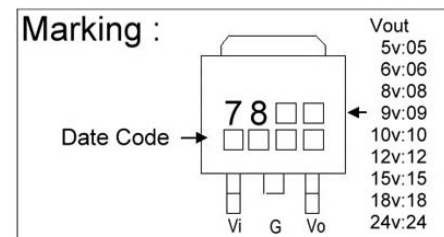


Description

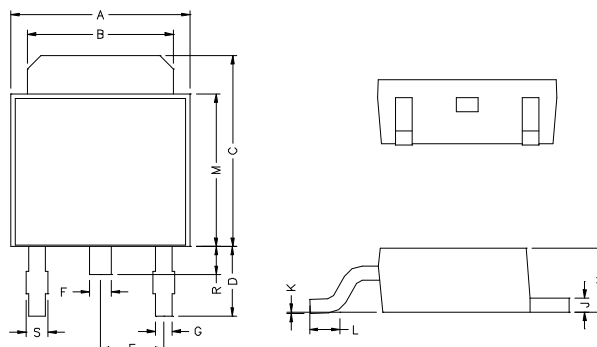
The SJ78XX series of fixed-voltage monolithic integrated-circuit voltage regulators designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. Each of these regulators can deliver up to 1A of output current. The internal current limiting and thermal shutdown features of these regulators make them essentially immune to overload.

Features

- *5V,6V,8V,9V,10V,12V,15V,18V,24V Output Voltage Available
- *Output Transistor Safe-Area Compensation
- *No External Components
- *Internal Thermal Overload Protection
- *Internal Short-Circuit Current Limiting
- *High Power Dissipation Capability



TO-252



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	0.50	0.70
B	5.20	5.50	H	2.20	2.40
C	6.80	7.20	J	0.45	0.55
D	2.20	2.80	K	0	0.15
E	2.30 REF.		L	0.90	1.50
F	0.70	0.90	M	5.40	5.80
S	0.60	0.90	R	0.80	1.20

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Input Voltage	SJ7805~18	35	V
	SJ7824	40	V
Output Current	I _O	1	A
Operating Junction And Storage Temperature Range	T _j , T _{stg}	-55~+150	°C
Thermal Resistance Junction-Air	R _{θJA}	125	W/°C
Thermal Resistance Junction-Cases	R _{θJC}	12.5	W/°C

Electrical Characteristics

SJ7805 (Refer to the test circuits, T_j=0~125°C, I_O=500mA, V_{IN}=10V, C_{IN}=0.33uF, C_O=0.1uF unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V _O	A-Rank (3%)	4.85	5	5.15	V	V _{IN} =10V,I _O =500mA,T _J =25°C
	B-Rank (5%)	4.75	—	5.25		7.5V≤V _{IN} ≤20V,5mA≤I _O ≤1A,PD≤15W
ΔV _O (Line Regulation)		—	3	50	mV	7V≤V _{IN} ≤25V,I _O =500mA,T _J =25°C
		—	1	25		8V≤V _{IN} ≤12V,I _O =500mA,T _J =25°C
ΔV _O (Load Regulation)		—	—	100	mV	V _{IN} =10V,5mA≤I _O ≤1A,T _J =25°C
		—	—	50		V _{IN} =10V,250mA≤I _O ≤750mA,T _J =25°C
I _O		—	—	8	mA	V _{IN} =10V,I _O =500mA,T _J =25°C
ΔI _O		—	—	0.5	mA	V _{IN} =10V,5mA≤I _O ≤1A
		—	—	1.3		7V≤V _{IN} ≤25V,I _O =500mA
V _N		—	40	—	μA	10Hz≤f≤100Hz,T _J =25°C
RR		—	80	—	dB	8V≤V _{IN} ≤18V,f=120Hz,T _J =25°C
V _D		—	2	—	V	I _O =1A,T _J =25°C
I _{SC}		—	250	—	mA	V _{IN} =35V,T _J =25°C
I _{PK}		—	1.8	—	mA	T _J =25°C
ΔV _O /ΔT _J		—	-0.6	—	mV/°C	I _O =5mA,0°C≤T _J ≤25°C

SJ7806 (Refer to the test circuits, $T_j=0\sim125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{IN}=11\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	5.82	6	6.18	V	$V_{IN}=11\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	5.7	—	6.3		$8\text{V} \leq V_{IN} \leq 21\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	3	60	mV	$8\text{V} \leq V_{IN} \leq 25\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	1	25		$9\text{V} \leq V_{IN} \leq 13\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	100	mV	$V_{IN}=11\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	50		$V_{IN}=11\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{IN}=11\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{IN}=11\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1.3		$8\text{V} \leq V_{IN} \leq 25\text{V}, I_o=500\text{mA}$
V_N		—	45	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	75	—	dB	$9\text{V} \leq V_{IN} \leq 19\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{SC}		—	250	—	mA	$V_{IN}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-0.7	—	mV/ $^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

SJ7808 (Refer to the test circuits, $T_j=0\sim125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{IN}=14\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	7.76	8	8.24	V	$V_{IN}=14\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	7.6	—	8.4		$10.5\text{V} \leq V_{IN} \leq 23\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	3	80	mV	$10.5\text{V} \leq V_{IN} \leq 25\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	1	40		$11\text{V} \leq V_{IN} \leq 17\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	100	mV	$V_{IN}=14\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	50		$V_{IN}=14\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{IN}=14\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{IN}=14\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1.3		$10.5\text{V} \leq V_{IN} \leq 25\text{V}, I_o=500\text{mA}$
V_N		—	58	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	72	—	dB	$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{SC}		—	250	—	mA	$V_{IN}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-0.9	—	mV/ $^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

SJ7809 (Refer to the test circuits, $T_j=0\sim 125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{in}=15\text{V}$, $C_{in}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	8.73	9	9.27	V	$V_{in}=15\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	8.55	—	9.45		$11.5\text{V} \leq V_{in} \leq 24\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	5	90	mV	$11.5\text{V} \leq V_{in} \leq 25\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	3	45		$13\text{V} \leq V_{in} \leq 19\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	100	mV	$V_{in}=15\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	50		$V_{in}=15\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{in}=15\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{in}=15\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1.3		$11.5\text{V} \leq V_{in} \leq 26\text{V}, I_o=500\text{mA}$
V_N		—	58	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	72	—	dB	$12.5\text{V} \leq V_{in} \leq 22.5\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{sc}		—	250	—	mA	$V_{in}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-1.1	—	$\text{mV}/^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

SJ7810 (Refer to the test circuits, $T_j=0\sim 125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{in}=16\text{V}$, $C_{in}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	9.7	10	10.3	V	$V_{in}=16\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	9.5	—	10.5		$12.5\text{V} \leq V_{in} \leq 25\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	—	100	mV	$13\text{V} \leq V_{in} \leq 25\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	—	50		$14\text{V} \leq V_{in} \leq 20\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	100	mV	$V_{in}=16\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	50		$V_{in}=16\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{in}=16\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{in}=16\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1		$12.5\text{V} \leq V_{in} \leq 25\text{V}, I_o=500\text{mA}$
V_N		—	58	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	72	—	dB	$13\text{V} \leq V_{in} \leq 23\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{sc}		—	250	—	mA	$V_{in}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-1.1	—	$\text{mV}/^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

SJ7812 (Refer to the test circuits, $T_j=0\sim 125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{IN}=19\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	11.64	12	12.36	V	$V_{IN}=19\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	11.4	—	12.6		$14.5\text{V} \leq V_{IN} \leq 27\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	10	120	mV	$14.5\text{V} \leq V_{IN} \leq 30\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	3	60		$16\text{V} \leq V_{IN} \leq 22\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	100	mV	$V_{IN}=19\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	60		$V_{IN}=19\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{IN}=19\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{IN}=19\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1.3		$14.5\text{V} \leq V_{IN} \leq 30\text{V}, I_o=500\text{mA}$
V_N		—	75	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	72	—	dB	$15\text{V} \leq V_{IN} \leq 25\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{SC}		—	250	—	mA	$V_{IN}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-1.5	—	mV/ $^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

SJ7815 (Refer to the test circuits, $T_j=0\sim 125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{IN}=23\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	14.55	15	15.45	V	$V_{IN}=23\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	14.25	—	15.75		$17.5\text{V} \leq V_{IN} \leq 30\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	—	150	mV	$17.5\text{V} \leq V_{IN} \leq 30\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	—	75		$17.5\text{V} \leq V_{IN} \leq 30\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	150	mV	$V_{IN}=23\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	75		$V_{IN}=23\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{IN}=23\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{IN}=23\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1.3		$17.5\text{V} \leq V_{IN} \leq 30\text{V}, I_o=500\text{mA}$
V_N		—	90	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	70	—	dB	$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{SC}		—	250	—	mA	$V_{IN}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-1.8	—	mV/ $^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

SJ7818 (Refer to the test circuits, $T_j=0\sim125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{IN}=27\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

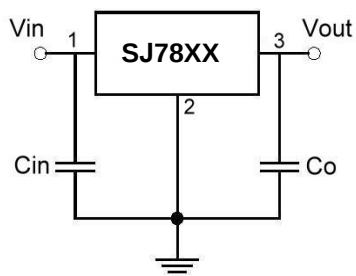
Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	17.46	18	18.54	V	$V_{IN}=27\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	17.1	—	18.9		$21\text{V} \leq V_{IN} \leq 33\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	—	180	mV	$21\text{V} \leq V_{IN} \leq 33\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	—	90		$24\text{V} \leq V_{IN} \leq 30\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	180	mV	$V_{IN}=27\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	90		$V_{IN}=27\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{IN}=27\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{IN}=27\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1.0		$21\text{V} \leq V_{IN} \leq 33\text{V}, I_o=500\text{mA}$
V_N		—	110	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	69	—	dB	$22\text{V} \leq V_{IN} \leq 32\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{SC}		—	250	—	mA	$V_{IN}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-2.2	—	mV/ $^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

SJ7824 (Refer to the test circuits, $T_j=0\sim125^\circ\text{C}$, $I_o=500\text{mA}$, $V_{IN}=33\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Condition
V_o	A-Rank (3%)	23.28	24	24.72	V	$V_{IN}=33\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
	B-Rank (5%)	22.8	—	25.2		$27\text{V} \leq V_{IN} \leq 38\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, PD \leq 15\text{W}$
ΔV_o (Line Regulation)		—	—	240	mV	$27\text{V} \leq V_{IN} \leq 38\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
		—	—	120		$30\text{V} \leq V_{IN} \leq 36\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔV_o (Load Regulation)		—	—	240	mV	$V_{IN}=33\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}, T_j=25^\circ\text{C}$
		—	—	120		$V_{IN}=33\text{V}, 250\text{mA} \leq I_o \leq 750\text{mA}, T_j=25^\circ\text{C}$
I_o		—	—	8	mA	$V_{IN}=33\text{V}, I_o=500\text{mA}, T_j=25^\circ\text{C}$
ΔI_o		—	—	0.5	mA	$V_{IN}=33\text{V}, 5\text{mA} \leq I_o \leq 1\text{A}$
		—	—	1.0		$28\text{V} \leq V_{IN} \leq 38\text{V}, I_o=500\text{mA}$
V_N		—	170	—	μA	$10\text{Hz} \leq f \leq 100\text{Hz}, T_j=25^\circ\text{C}$
RR		—	66	—	dB	$28\text{V} \leq V_{IN} \leq 38\text{V}, f=120\text{Hz}, T_j=25^\circ\text{C}$
V_D		—	2	—	V	$I_o=1\text{A}, T_j=25^\circ\text{C}$
I_{SC}		—	250	—	mA	$V_{IN}=35\text{V}, T_j=25^\circ\text{C}$
I_{PK}		—	1.8	—	mA	$T_j=25^\circ\text{C}$
$\Delta V_o/\Delta T_j$		—	-2.8	—	mV/ $^\circ\text{C}$	$I_o=5\text{mA}, 0^\circ\text{C} \leq T_j \leq 25^\circ\text{C}$

www.datasheet4u.com

Typical Application



Characteristics Curve

