

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions ²	IP1R18A-05 IP3R18A-05			IP1R18-05 IP3R18-05			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
V_O Output Voltage		4.95	5	5.05	4.85		5.15	V
	$I_O = 5\text{mA to } 5\text{A}$ $P_{OUT} \leq 50\text{W}$ $V_{IN} = 8\text{V to } 20\text{V}$ $T_J = \text{Over Temp. Range } ^1$	4.85		5.15	4.75		5.25	V
$\frac{\Delta V_O}{\Delta V_I}$ Line Regulation	$V_{IN} = 7.5\text{V to } 35\text{V}$		3	15	6		30	mV
	$I_O = 5\text{mA}^3$ $T_J = \text{Over Temp. Range } ^1$		6	30	12		60	
$\frac{\Delta V_O}{\Delta I_O}$ Load Regulation	$I_O = 5\text{mA to } 5\text{A}^3$		5	25	10		50	mV
	$T_J = \text{Over Temp. Range } ^1$		10	50	20		100	
I_Q Quiescent Current	$I_O = 5\text{mA}$ $T_J = \text{Over Temp. Range } ^1$			7			7	mA
ΔI_Q Quiescent Current Change	$I_O = 5\text{mA to } 5\text{A}$ $T_J = \text{Over Temp. Range } ^1$			10			10	mA
	$I_O = 5\text{mA}$ $V_{IN} = 7.5\text{V to } 35\text{V}$ $T_J = \text{Over Temp. Range } ^1$			3			3	
V_D Dropout Voltage	$I_O = 5\text{A}$ $\Delta V_{OUT} = 100\text{mV}$ $T_J = \text{Over Temp. Range } ^1$		2.5	3	2.5		3	V
Ripple Rejection	$I_O = 1\text{A}$ $f = 120\text{Hz}$ $T_J = \text{Over Temp. Range } ^1$	60	80		60	80		dB
Thermal Regulation	$t_p = 20\text{ms}$ $\Delta P = 50\text{W}$		0.002	0.01	0.002		0.02	%/W
I_{PEAK} Peak Output Current	$V_{IN} = 10\text{V}$ $T_J = \text{Over Temp. Range } ^1$		8	12	8		12	A
I_{SC} Short Circuit Current	$V_{IN} = 10\text{V}$		7		7			A
	$V_{IN} = 35\text{V}$		2		2			
e_n Output Noise Voltage	$f = 10\text{Hz to } 100\text{kHz}$		40		40			μV
$R_{\theta JC}$ Thermal Resistance Junction to Case	K Package		1.0	1.5	1.0		1.5	$^\circ\text{C/W}$
	V Package		1.0	1.5	1.0		1.5	

Notes

- 1) Applies over full temperature range:-
 $T_J = -55$ to $+150^\circ\text{C}$ for IP1R18A-05 / IP1R18-05
 $T_J = 0$ to $+125^\circ\text{C}$ for IP3R18A-05 / IP3R18-05
All other specifications apply at $T_J = 25^\circ\text{C}$ unless otherwise stated.
- 2) Test conditions unless otherwise stated:-
 $V_{IN} = 10\text{V}$, $I_{OUT} = 2.5\text{A}$.
Although Power Dissipation is internally limited, these specifications apply for Power Dissipation up to 50W.
- 3) Load and Line regulation are electrically independent and are measured using pulse techniques at low duty cycle in order to maintain constant junction temperature. To determine the effects on the output voltage due to device heating, refer to thermal regulation specification.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions ²	IP1R18A-12 IP3R18A-12			IP1R18-12 IP3R18-12			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
V_O Output Voltage		11.88	12	12.12	11.64	12	12.36	V
	$I_O = 5\text{mA to } 5\text{A}$ $P_{OUT} \leq 50\text{W}$ $V_{IN} = 15\text{V to } 27\text{V}$ $T_J = \text{Over Temp. Range } ^1$	11.64		12.36	11.40		12.60	V
$\frac{\Delta V_O}{\Delta V_I}$ Line Regulation	$V_{IN} = 14.5\text{V to } 35\text{V}$		5	30		10	60	mV
	$I_O = 5\text{mA}^3$ $T_J = \text{Over Temp. Range } ^1$		10	60		20	120	
$\frac{\Delta V_O}{\Delta I_O}$ Load Regulation	$I_O = 5\text{mA to } 5\text{A}^3$		10	60		20	120	mV
	$T_J = \text{Over Temp. Range } ^1$		20	120		40	240	
I_Q Quiescent Current	$I_O = 5\text{mA}$ $T_J = \text{Over Temp. Range } ^1$			7			7	mA
ΔI_Q Quiescent Current Change	$I_O = 5\text{mA to } 5\text{A}$ $T_J = \text{Over Temp. Range } ^1$			10			10	mA
	$I_O = 5\text{mA}$ $V_{IN} = 14.5\text{V to } 35\text{V}$ $T_J = \text{Over Temp. Range } ^1$			3			3	
V_D Dropout Voltage	$I_O = 5\text{A}$ $\Delta V_{OUT} = 250\text{mV}$ $T_J = \text{Over Temp. Range } ^1$		2.5	3		2.5	3	V
Ripple Rejection	$I_O = 1\text{A}$ $f = 120\text{Hz}$ $T_J = \text{Over Temp. Range } ^1$	52	72		52	72		dB
Thermal Regulation	$t_p = 20\text{ms}$ $\Delta P = 50\text{W}$		0.002	0.01		0.002	0.02	%/W
I_{PEAK} Peak Output Current	$V_{IN} = 17\text{V}$ $T_J = \text{Over Temp. Range } ^1$		8	12		8	12	A
I_{SC} Short Circuit Current	$V_{IN} = 17\text{V}$		4			4		A
	$V_{IN} = 35\text{V}$		2			2		
e_n Output Noise Voltage			75			75		μV
$R_{\theta JC}$ Thermal Resistance Junction to Case	K Package		1.0	1.5		1.0	1.5	$^\circ\text{C/W}$
	V Package		1.0	1.5		1.0	1.5	

Notes

- Applies over full temperature range:–
 $T_J = -55$ to $+150^\circ\text{C}$ for IP1R18A-12 / IP1R18-12
 $T_J = 0$ to $+125^\circ\text{C}$ for IP3R18A-12 / IP3R18-12
All other specifications apply at $T_J = 25^\circ\text{C}$ unless otherwise stated.
- Test conditions unless otherwise stated:–
 $V_{IN} = 17\text{V}$, $I_{OUT} = 2.5\text{A}$.
Although Power Dissipation is internally limited, these specifications apply for Power Dissipation up to 50W.
- Load and Line regulation are electrically independent and are measured using pulse techniques at low duty cycle in order to maintain constant junction temperature. To determine the effects on the output voltage due to device heating, refer to thermal regulation specification.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions ²	IP1R18A-15 IP3R18A-15			IP1R18-15 IP3R18-15			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
V_O Output Voltage	$I_O = 5\text{mA to } 5\text{A}$	14.85	15	15.15	14.55	15	15.45	V
	$P_{OUT} \leq 50\text{W}$ $V_{IN} = 18\text{V to } 30\text{V}$ $T_J = \text{Over Temp. Range } ^1$	14.55		15.45	14.25		15.75	V
$\frac{\Delta V_O}{\Delta V_I}$ Line Regulation	$V_{IN} = 17.5\text{V to } 35\text{V}$		8	40		16	80	mV
	$I_O = 5\text{mA}^3$ $T_J = \text{Over Temp. Range } ^1$		16	80		32	160	
$\frac{\Delta V_O}{\Delta I_O}$ Load Regulation	$I_O = 5\text{mA to } 5\text{A}^3$		16	80		32	160	mV
	$T_J = \text{Over Temp. Range } ^1$		32	160		64	320	
I_Q Quiescent Current	$I_O = 5\text{mA}$ $T_J = \text{Over Temp. Range } ^1$			7			7	mA
ΔI_Q Quiescent Current Change	$I_O = 5\text{mA to } 5\text{A}$ $T_J = \text{Over Temp. Range } ^1$			10			10	mA
	$I_O = 5\text{mA}$ $V_{IN} = 17.5\text{V to } 35\text{V}$ $T_J = \text{Over Temp. Range } ^1$			3			3	
V_D Dropout Voltage	$I_O = 5\text{A}$ $\Delta V_{OUT} = 300\text{mV}$ $T_J = \text{Over Temp. Range } ^1$		2.5	3		2.5	3	V
Ripple Rejection	$I_O = 1\text{A}$ $f = 120\text{Hz}$ $T_J = \text{Over Temp. Range } ^1$	50	70		50	70		dB
Thermal Regulation	$t_p = 20\text{ms}$ $\Delta P = 50\text{W}$		0.002	0.01		0.002	0.02	%/W
I_{PEAK} Peak Output Current	$V_{IN} = 20\text{V}$ $T_J = \text{Over Temp. Range } ^1$		8	12		8	12	A
I_{SC} Short Circuit Current	$V_{IN} = 20\text{V}$		3.5			3.5		A
	$V_{IN} = 35\text{V}$		2			2		
e_n Output Noise Voltage			90			90		μV
$R_{\theta JC}$ Thermal Resistance Junction to Case	K Package		1.0	1.5		1.0	1.5	$^\circ\text{C/W}$
	V Package		1.0	1.5		1.0	1.5	

Notes

- 1) Applies over full temperature range:–
 $T_J = -55$ to $+150^\circ\text{C}$ for IP1R18A-15 / IP1R18-15
 $T_J = 0$ to $+125^\circ\text{C}$ for IP3R18A-15 / IP3R18-15
All other specifications apply at $T_J = 25^\circ\text{C}$ unless otherwise stated.
- 2) Test conditions unless otherwise stated:–
 $V_{IN} = 20\text{V}$, $I_{OUT} = 2.5\text{A}$.
Although Power Dissipation is internally limited, these specifications apply for Power Dissipation up to 50W.
- 3) Load and Line regulation are electrically independent and are measured using pulse techniques at low duty cycle in order to maintain constant junction temperature. To determine the effects on the output voltage due to device heating, refer to thermal regulation specification.