



#### FEATURES

- RoHS compliant
- Efficiency to 95%
- Industry standard footprint
- Short circuit protection
- Wide input range
- 1.8V, 2.5V, 3.3V & 5V Output
- Operating temperature range -40°C to 85°C
- SMD construction
- Optional shutdown & trim pins (NGA10S15050SEC & NGA10S15050DEC)

#### DESCRIPTION

The NGA series is a range of low profile DC/DC converters offering a single regulated output over a wide input voltage range. All parts deliver the full output power up to 85°C without the need for external heatsinking while the synchronous rectification design yields excellent efficiencies up to 95%.

#### SELECTION GUIDE

Order Code	Nominal Input Voltage V	Output Voltage V	Output Current		Nominal Input Current at Full Load			Power Consumption at Shutdown			Nominal Efficiency		Package Style
			Min. Load	Full Load	Min. V <sub>IN</sub>	Nom. V <sub>IN</sub>	Max. V <sub>IN</sub>	Min. V <sub>IN</sub>	Nom. V <sub>IN</sub>	Max. V <sub>IN</sub>	Min. V <sub>IN</sub>	Max. V <sub>IN</sub>	
			A		mA			mW			%		
NGA10S15018SC	15	1.8	0	2.0	847	280	160	0.5	4.8	16.1	89	81	SIP
NGA10S15018DC	15	1.8	0	2.0	847	280	160	0.5	4.8	16.1	89	81	DIP
NGA10S15025SC	15	2.5	0	2.0	1142	380	210	0.5	4.8	16.1	92	85	SIP
NGA10S15025DC	15	2.5	0	2.0	1142	380	210	0.5	4.8	16.1	92	85	DIP
NGA10S15033SC	15	3.3	0	2.0	1478	480	269	0.5	4.8	16.1	94	88	SIP
NGA10S15033DC	15	3.3	0	2.0	1478	480	269	0.5	4.8	16.1	94	88	DIP
NGA10S15050SC	15	5.0	0	2.0	1493	705	388	1.0	4.8	16.1	95	92	SIP
NGA10S15050DC	15	5.0	0	2.0	1493	705	388	1.0	4.8	16.1	95	92	DIP
NGA10S15050SEC <sup>1</sup>	15	5.0	0	2.0	1493	705	388	1.0	4.8	16.1	95	92	SIP
NGA10S15050DEC <sup>1</sup>	15	5.0	0	2.0	1493	705	388	1.0	4.8	16.1	95	92	DIP

#### RECOMMENDED ALTERNATIVES:

Order Code	Recommended Alternative	Order Code	Recommended Alternative
NGA10S15018SC	OKR-T/3-W12-C	NGA10S15033DC	78SRH-3.3/2-C
NGA10S15018DC	OKR-T/3-W12-C	NGA10S15050SC	78SR-5/2-C
NGA10S15025SC	OKR-T/3-W12-C	NGA10S15050DC	78SRH-5/2-C
NGA10S15025DC	OKR-T/3-W12-C	NGA10S15050SEC	OKR-T/3-W12-C
NGA10S15033SC	78SR-3.3/2-C	NGA10S15050DEC	OKR-T/3-W12-C

Note: Also see OKI-78SR series for ≤1.5A models. Click here for the data sheet »

#### INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	Continuous operation, 1.8V, 2.5V & 3.3V output types	4.75	15	28	V
	Continuous operation NGA10S15050SC	7.0	15	28	
	Continuous operation NGA10S15050SEC	Variable <sup>2</sup>	15	28	
Reflected ripple current	1.8V output types		29		mA p-p
	2.5V output types		49		
	3.3V output types		48		
	5.0V output types		99		

#### OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated power	T <sub>A</sub> = -40°C to 85°C			10	W
Voltage set point accuracy			±1.5	±5.0	%
Line regulation	Low line to high line, with external input/output capacitors, refer to test circuit		0.2	0.5	%/%
Load regulation	10% load to 100% load, with external input/output capacitors, refer to test circuit		1.5	2.0	%
Ripple and noise	BW=DC to 20MHz, with external input/output capacitors, refer to test circuit		40	70	mVp-p

#### TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Operation		-40		85	°C
Storage		-55		125	
PCB temperature above ambient					
			40		

1. If optional V<sub>ADJ</sub> and SD pin are required (as indicated in the mechanical dimensions diagram) include an E in the part number when ordering, i.e. NGA10S15050SEC & NGA10S15050DEC.  
 2. Supply voltage should exceed output voltage by 1.45V.

All specifications typical at T<sub>A</sub>=25°C, nominal input voltage and rated output current unless otherwise specified.



ABSOLUTE MAXIMUM RATINGS	
Short-circuit protection	Continuous
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	1.1W
Input voltage $V_{IN}$	28V
Minimum load	0%
Output trim control	0V to +5V relative to COMMON
Shutdown control	-0.3V to +28V relative to COMMON

GENERAL CHARACTERISTICS					
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency		270	300	330	kHz
Transient response Max. over-shoot	50% load change, 1.8V output types		90 (160)		mV ( $\mu$ s)
	50% load change, 2.5V output types		84 (145)		
	50% load change, 3.3V output types		83 (130)		
	50% load change, 5.0V output types		75 (40)		
Transient response Max. under-shoot	50% load change, 1.8V output types		64 (160)		mV ( $\mu$ s)
	50% load change, 2.5V output types		86 (145)		
	50% load change, 3.3V output types		84 (120)		
	50% load change, 5.0V output types		74 (80)		
Under voltage lock out	1.8V, 2.5V & 3.3V output types		4.0		V
	5.0V output types		5.0		
Start delay	$V_{IN}$ Min. to $V_{IN}$ Max.		100		ms
ESD	400VDC from 100pF capacitor via 1500 $\Omega$ resistance	Meets MIL-STD-883C method 3015.7			