



Safe, efficient
protection solutions
in a small footprint

Safe and Efficient Protection Solutions with the Smallest Footprint

NXP's integrated load switch and OVP families, the NX3P, NX5P, NX20P and NX30P, provide efficient power distribution solutions to reduce system power consumption. These product families also supply robust protection against voltage and current surges.

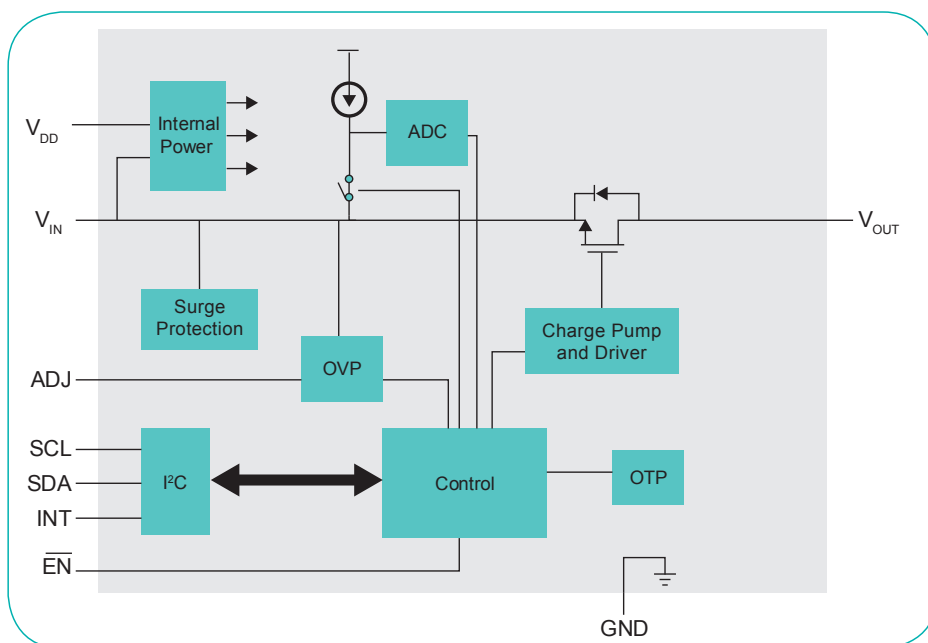
TARGET APPLICATIONS

- ▶ Smartphones/tablet PCs/notebooks
- ▶ IoT devices
- ▶ Digital cameras
- ▶ Game devices
- ▶ Portable medical devices
- ▶ Other power-sensitive applications

KEY FEATURES

- ▶ Ultra-low ON resistance for highest efficiency
- ▶ In-rush current control
- ▶ Overvoltage tolerant inputs to 30 V
- ▶ Overvoltage protection (OVP)
- ▶ Overcurrent protection (OCP)
- ▶ Overtemperature protection (OTP)
- ▶ Reverse current protection (RCP)
- ▶ VIN impedance detection
- ▶ Surge protection (IEC61000-4-5)

NX30P6093A BLOCK DIAGRAM



BENEFITS

- Protects from overvoltage, overcurrent surges
- Effective power distribution for USB Type-C and PD ports
- Extends battery life by disconnecting unused subsystems
- Replaces multiple discrete and LDOs and lowers total part count

With very low leakage current, and low ON resistance, NX3P/NX5P/NX20P/NX30P high-side load switches and OVP protection ICs are ideal to manage power distribution to subsystems while reducing total power dissipation.

OVP and OCP functions safeguard PMIC and sub-blocks from poorly regulated supplies during charge, and from faulty loads while in OTG mode.

Available in extremely small plastic and WLCSP packages, they can provide a continuous current from 200 mA to 8.0 A while operating from -40 to 85° C.

PROTECTION AND CONTROL

NXP's load switches and OVP protection ICs integrate reverse-current/voltage protection, overvoltage protection and overtemperature protection, actively safeguarding it and the components it supplies, when a system-fail event is detected.

Integrated slew-rate control reduces in-rush current associated with system start-up, while the ILIM-feature limits the maximum switch current.

Equipped with a low-threshold logic enable input, they can be used with both new and legacy controllers.

Undervoltage and overvoltage lock-out ensure the switch remains disabled until issues are removed before resuming normal operation.

PACKAGES

Built in small-footprint WLCSP packages, these load switches also integrate ESD IEC61000-4-2 and surge IEC61000-4-5 protection, making them ideal for portable applications where board space is at a premium. Requiring minimal external components, the low pin count further improves crowded layouts by simplifying routing and eliminating dependencies of intricate line-layout patterns.

NXP packages are Dark Green, Pb-free, and RoHS compliant. For more information about NXP load switches, visit: www.nxp.com/products/logic/load_switches.

NXP LOAD SWITCH PORTFOLIO

Device	Target Applications	VIN (V)	RON (mΩ)	IMAX (A)	ILIM	Slew Rate	VIN Impedance Detect	OCP	RCP	UVLO	OVLO	Fast Role Swap	Package
NX3P2902B	Smart Phone, Mobile Computing	1.1-3.6	65	0.5		√							WLCSP-4
NX5P2924	Smart Phone, Mobile Computing	1.0-5.5	18	2.5		√							WLCSP-6
NX5P3001	Smart Phone, Mobile Computing	3.2-6.35	62	3		√				√	√		WLCSP-12
NX18P3001	Smart Phone, Mobile Computing	3.2-17.5	62	3		√				√	√		WLCSP-12
NX20P5090	Smart Phone, Mobile Computing	2.5-20	30	5		√				√	√		WLCSP-15
NX5P3090	Smart Phone, Mobile Computing	2.5-5.5	35	3.3	√			√	√	√	√		WLCSP-12
NX5P3290	Smart Phone, Mobile Computing	4.0-5.5	35	3.3	√			√	√	√	√	√	WLCSP-16
NX5P3363	Smart Phone, Mobile Computing	4.0-5.5	35	3.3	√			√	√	√	√	√	WLCSP-16
NX30P6093	Smart Phone, Mobile Computing	2.8-20	9	8		√	√			√	√		WLCSP-20
NX30P6093A	Smart Phone, Mobile Computing	2.8-20	16	5		√	√			√	√		WLCSP-20
NX20P0407	Smart Phone, Mobile Computing	2.5-5.5	CC Switch 16	1.2						√	√		WLCSP-12
NX20P0408	Smart Phone, Mobile Computing	2.5-5.5								√	√		WLCSP-12
NX20P3483UKAZ	Notebook	2.8-20	28	5	√	√		√	√	√	√	√	WLCSP-42