

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
MSP430FR59471IRHAF	Active	Production	VQFN (RHA) 40	2500 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR59471
MSP430FR59471IRHAT	Active	Production	VQFN (RHA) 40	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR59471
MSP430FR5947IDA	Active	Production	TSSOP (DA) 38	40 TUBE	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5947
MSP430FR5947IDAR	Active	Production	TSSOP (DA) 38	2000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5947
MSP430FR5947IRHAR	Active	Production	VQFN (RHA) 40	2500 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5947
MSP430FR5947IRHAT	Active	Production	VQFN (RHA) 40	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5947
MSP430FR5948IDA	Active	Production	TSSOP (DA) 38	40 TUBE	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5948
MSP430FR5948IDAR	Active	Production	TSSOP (DA) 38	2000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5948
MSP430FR5948IRHAR	Active	Production	VQFN (RHA) 40	2500 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5948
MSP430FR5948IRHAT	Active	Production	VQFN (RHA) 40	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5948
MSP430FR5949IDA	Active	Production	TSSOP (DA) 38	40 TUBE	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5949
MSP430FR5949IDAR	Active	Production	TSSOP (DA) 38	2000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5949
MSP430FR5949IRHAR	Active	Production	VQFN (RHA) 40	2500 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5949
MSP430FR5949IRHAT	Active	Production	VQFN (RHA) 40	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5949
MSP430FR5957IDA	Active	Production	TSSOP (DA) 38	40 TUBE	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5957
MSP430FR5957IDAR	Active	Production	TSSOP (DA) 38	2000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5957
MSP430FR5957IRHAR	Active	Production	VQFN (RHA) 40	2500 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5957
MSP430FR5957IRHAT	Active	Production	VQFN (RHA) 40	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5957
MSP430FR5958IDA	Active	Production	TSSOP (DA) 38	40 TUBE	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5958
MSP430FR5958IDAR	Active	Production	TSSOP (DA) 38	2000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5958
MSP430FR5958IRHAR	Active	Production	VQFN (RHA) 40	2500 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5958
MSP430FR5958IRHAT	Active	Production	VQFN (RHA) 40	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5958
MSP430FR5959IDA	Active	Production	TSSOP (DA) 38	40 TUBE	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5959
MSP430FR5959IDAR	Active	Production	TSSOP (DA) 38	2000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5959
MSP430FR5959IRHAR	Active	Production	VQFN (RHA) 40	2500 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5959
MSP430FR5959IRHAT	Active	Production	VQFN (RHA) 40	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5959
MSP430FR5967IRGZR	Active	Production	VQFN (RGZ) 48	2500 LARGE T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5967
MSP430FR5967IRGZT	Active	Production	VQFN (RGZ) 48	250 SMALL T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5967
MSP430FR5968IRGZR	Active	Production	VQFN (RGZ) 48	2500 LARGE T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5968

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MSP430FR5968IRGZT	Active	Production	VQFN (RGZ) 48	250 SMALL T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5968
MSP430FR59691IRGZF	Active	Production	VQFN (RGZ) 48	2500 LARGE T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR59691
MSP430FR59691IRGZT	Active	Production	VQFN (RGZ) 48	250 SMALL T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR59691
MSP430FR5969IRGZR	Active	Production	VQFN (RGZ) 48	2500 LARGE T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5969
MSP430FR5969IRGZT	Active	Production	VQFN (RGZ) 48	250 SMALL T&R	Yes	NIPDAU NIPDAU	Level-3-260C-168 HR	-40 to 85	FR5969

(1) **Status:** For more details on status, see our [product life cycle](#).

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

OTHER QUALIFIED VERSIONS OF MSP430FR5969 :

- Space : [MSP430FR5969-SP](#)

NOTE: Qualified Version Definitions:

- Space - Radiation tolerant, ceramic packaging and qualified for use in Space-based application