

Microsemi Corporation

December 18th, 2015

Product/Process Change Notification No: PCN1510

Change Classification: Minor

Subject: Change to SmartFusion® 2 and IGLOO® 2 weak pull-up and pull-down values.

Summary of Changes

This is to notify customers about a minor specification change related to the weak pull-up and pull-down values for the FPGA I/O for the SmartFusion2 and IGLOO2 product families. The change affects all user I/O types, MSIO, MSIOD, and DDRIO. These changes are applicable to all temperature grade SmartFusion2 and IGLOO2 devices and are needed to improve manufacturing efficiencies.

Change

SmartFusion2 and IGLOO2 devices have a slight increase in the weak pull-up and pull-down resistance values for all user I/O types.

Description of Change

Table 1 Current SmartFusion2 and IGLOO2 Weak Pull-Up and Pull-Down Values

	DDRIO I/O Bank				MSIO I/O Bank				MSIOD I/O Bank			
	$R_{(WEAK\ PULL-UP)}$		$R_{(WEAK\ PULL-DOWN)}$		$R_{(WEAK\ PULL-UP)}$		$R_{(WEAK\ PULL-DOWN)}$		$R_{(WEAK\ PULL-UP)}$		$R_{(WEAK\ PULL-DOWN)}$	
	at VOH (Ω)		at VOL (Ω)		at VOH (Ω)		at VOL (Ω)		at VOH (Ω)		at VOL (Ω)	
Vddio	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
3.3 V	N/A	N/A	N/A	N/A	9.9 k	14.5 k	9.98 k	14.9 k	N/A	N/A	N/A	N/A
2.5 V	10 k	15.1 k	9.98 k	15.3 k	10 k	15 k	10.1 k	15.6 k	9.6 k	14.1 k	9.5 k	13.9 k
1.8 V	10.3 k	16.2 k	10.3 k	16.6 k	10.4 k	16.2 k	10.4 k	17.3 k	9.7 k	14.7 k	9.7 k	14.5 k
1.5 V	10.6 k	17.2 k	10.6 k	17.9 k	10.7 k	17.3 k	10.8 k	18.9 k	9.9 k	15.3 k	9.8 k	15 k
1.2 V	11.1 k	19.3 k	11.2 k	20.9 k	11.3 k	19.7 k	11.5 k	22.7 k	10.3 k	16.7 k	10 k	16.2 k

Table 2 New SmartFusion2 and IGLOO2 Weak Pull-Up and Pull-Down Values

	DDRIO I/O Bank				MSIO I/O Bank				MSIOD I/O Bank			
	$R_{(WEAK\ PULL-UP)}$		$R_{(WEAK\ PULL-DOWN)}$		$R_{(WEAK\ PULL-UP)}$		$R_{(WEAK\ PULL-DOWN)}$		$R_{(WEAK\ PULL-UP)}$		$R_{(WEAK\ PULL-DOWN)}$	
	at VOH (Ω)		at VOL (Ω)		at VOH (Ω)		at VOL (Ω)		at VOH (Ω)		at VOL (Ω)	
Vddio	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
3.3 V	N/A	N/A	N/A	N/A	9.9 k	17.1 k	9.98 k	17.5 k	N/A	N/A	N/A	N/A
2.5 V	10 k	17.8 k	9.98 k	18 k	10 k	17.6 k	10.1 k	18.4 k	9.6 k	16.6 k	9.5 k	16.4 k
1.8 V	10.3 k	19.1 k	10.3 k	19.5 k	10.4 k	19.1 k	10.4 k	20.4 k	9.7 k	17.3 k	9.7 k	17.1 k
1.5 V	10.6 k	20.2 k	10.6 k	21.1 k	10.7 k	20.4 k	10.8 k	22.2 k	9.9 k	18 k	9.8 k	17.6 k
1.2 V	11.1 k	22.7 k	11.2 k	24.6 k	11.3 k	23.2 k	11.5 k	26.7 k	10.3 k	19.6 k	10 k	19.1 k

Application Impact

This change is not anticipated to materially impact any customer applications.

Contact Information

If you have further questions related to this topic, contact Microsemi's Technical Support at soc_tech@microsemi.com.

Regards,

Microsemi Corporation

Any projected dates in this PCN are based on the most current product information at the time this PCN is being issued, but they may change due to unforeseen circumstances. For the latest schedule and any other information, please contact your local Microsemi Sales Office, the factory contact shown above, or your local distributor.

This Product/Process Change Notification is confidential and proprietary information of Microsemi and is intended only for distribution by Microsemi to its customers, for customers' use only. It must not be copied or provided to any third-party without Microsemi's prior written consent.

Appendix A: List of Affected Devices

Affected Devices in IGLOO2 Family with Leaded Parts			
M2GL005-TQ144	M2GL010-1VF256	M2GL050-FCS325I	M2GL005-1VF400I
M2GL010-TQ144	M2GL025-1VF256	M2GL060-FCS325I	M2GL010-1VF400I
M2GL005-VF256	M2GL025-1FCS325	M2GL090-FCS325I	M2GL025-1VF400I
M2GL010-VF256	M2GL050-1FCS325	M2GL005-VF400I	M2GL050-1VF400I
M2GL025-VF256	M2GL060-1FCS325	M2GL010-VF400I	M2GL060-1VF400I
M2GL025-FCS325	M2GL090-1FCS325	M2GL025-VF400I	M2GL150-1FCV484I
M2GL050-FCS325	M2GL005-1VF400	M2GL050-VF400I	M2GL005-1FG484I
M2GL060-FCS325	M2GL010-1VF400	M2GL060-VF400I	M2GL010-1FG484I
M2GL090-FCS325	M2GL025-1VF400	M2GL150-FCV484I	M2GL025-1FG484I
M2GL005-VF400	M2GL050-1VF400	M2GL005-FG484I	M2GL050-1FG484I
M2GL010-VF400	M2GL060-1VF400	M2GL010-FG484I	M2GL060-1FG484I
M2GL025-VF400	M2GL150-1FCV484	M2GL025-FG484I	M2GL090-1FG484I
M2GL050-VF400	M2GL005-1FG484	M2GL050-FG484I	M2GL150-1FCS536I
M2GL060-VF400	M2GL010-1FG484	M2GL060-FG484I	M2GL060-1FG676I
M2GL150-FCV484	M2GL025-1FG484	M2GL090-FG484I	M2GL090-1FG676I
M2GL005-FG484	M2GL050-1FG484	M2GL150-FCS536I	M2GL050-1FG896I
M2GL010-FG484	M2GL060-1FG484	M2GL060-FG676I	M2GL150-1FC1152I
M2GL025-FG484	M2GL090-1FG484	M2GL090-FG676I	M2GL010T-1VF256I
M2GL050-FG484	M2GL150-1FCS536	M2GL050-FG896I	M2GL025T-1VF256I
M2GL060-FG484	M2GL060-1FG676	M2GL150-FC1152I	M2GL025T-1FCS325I
M2GL090-FG484	M2GL090-1FG676	M2GL010T-VF256I	M2GL050T-1FCS325I
M2GL150-FCS536	M2GL050-1FG896	M2GL025T-VF256I	M2GL060T-1FCS325I
M2GL060-FG676	M2GL150-1FC1152	M2GL025T-FCS325I	M2GL090T-1FCS325I
M2GL090-FG676	M2GL010T-1VF256	M2GL050T-FCS325I	M2GL010T-1VF400I
M2GL050-FG896	M2GL025T-1VF256	M2GL060T-FCS325I	M2GL025T-1VF400I
M2GL150-FC1152	M2GL025T-1FCS325	M2GL090T-FCS325I	M2GL050T-1VF400I
M2GL010T-VF256	M2GL050T-1FCS325	M2GL010T-VF400I	M2GL060T-1VF400I
M2GL025T-VF256	M2GL060T-1FCS325	M2GL025T-VF400I	M2GL150T-1FCV484I
M2GL025T-FCS325	M2GL090T-1FCS325	M2GL050T-VF400I	M2GL010T-1FG484I
M2GL050T-FCS325	M2GL010T-1VF400	M2GL060T-VF400I	M2GL025T-1FG484I

M2GL060T-FCS325	M2GL025T-1VF400	M2GL150T-FCV484I	M2GL050T-1FG484I
M2GL090T-FCS325	M2GL050T-1VF400	M2GL010T-FG484I	M2GL060T-1FG484I
M2GL010T-VF400	M2GL060T-1VF400	M2GL025T-FG484I	M2GL090T-1FG484I
M2GL025T-VF400	M2GL150T-1FCV484	M2GL050T-FG484I	M2GL150T-1FCS536I
M2GL050T-VF400	M2GL010T-1FG484	M2GL060T-FG484I	M2GL060T-1FG676I
M2GL060T-VF400	M2GL025T-1FG484	M2GL090T-FG484I	M2GL090T-1FG676I
M2GL150T-FCV484	M2GL050T-1FG484	M2GL150T-FCS536I	M2GL050T-1FG896I
M2GL010T-FG484	M2GL060T-1FG484	M2GL060T-FG676I	M2GL150T-1FC1152I
M2GL025T-FG484	M2GL090T-1FG484	M2GL090T-FG676I	M2GL005S-1TQ144I
M2GL050T-FG484	M2GL150T-1FCS536	M2GL050T-FG896I	M2GL010S-1TQ144I
M2GL060T-FG484	M2GL060T-1FG676	M2GL150T-FC1152I	M2GL005S-1VF256I
M2GL090T-FG484	M2GL090T-1FG676	M2GL005S-TQ144I	M2GL005S-1VF400I
M2GL150T-FCS536	M2GL050T-1FG896	M2GL010S-TQ144I	M2GL005S-1FG484I
M2GL060T-FG676	M2GL150T-1FC1152	M2GL005S-VF256I	M2GL010TS-1VF256I
M2GL090T-FG676	M2GL005S-1TQ144	M2GL005S-VF400I	M2GL025TS-1VF256I
M2GL050T-FG896	M2GL010S-1TQ144	M2GL005S-FG484I	M2GL025TS-1FCS325I
M2GL150T-FC1152	M2GL005S-1VF256	M2GL010TS-VF256I	M2GL050TS-1FCS325I
M2GL005S-TQ144	M2GL005S-1VF400	M2GL025TS-VF256I	M2GL060TS-1FCS325I
M2GL010S-TQ144	M2GL005S-1FG484	M2GL025TS-FCS325I	M2GL090TS-1FCS325I
M2GL005S-VF256	M2GL010TS-1VF256	M2GL050TS-FCS325I	M2GL010TS-1VF400I
M2GL005S-VF400	M2GL025TS-1VF256	M2GL060TS-FCS325I	M2GL025TS-1VF400I
M2GL005S-FG484	M2GL025TS-1FCS325	M2GL090TS-FCS325I	M2GL050TS-1VF400I
M2GL010TS-VF256	M2GL050TS-1FCS325	M2GL010TS-VF400I	M2GL060TS-1VF400I
M2GL025TS-VF256	M2GL060TS-1FCS325	M2GL025TS-VF400I	M2GL150TS-1FCV484I
M2GL025TS-FCS325	M2GL090TS-1FCS325	M2GL050TS-VF400I	M2GL010TS-1FG484I
M2GL050TS-FCS325	M2GL010TS-1VF400	M2GL060TS-VF400I	M2GL025TS-1FG484I
M2GL060TS-FCS325	M2GL025TS-1VF400	M2GL150TS-FCV484I	M2GL050TS-1FG484I
M2GL090TS-FCS325	M2GL050TS-1VF400	M2GL010TS-FG484I	M2GL060TS-1FG484I
M2GL010TS-VF400	M2GL060TS-1VF400	M2GL025TS-FG484I	M2GL090TS-1FG484I
M2GL025TS-VF400	M2GL150TS-1FCV484	M2GL050TS-FG484I	M2GL150TS-1FCS536I
M2GL050TS-VF400	M2GL010TS-1FG484	M2GL060TS-FG484I	M2GL060TS-1FG676I
M2GL060TS-VF400	M2GL025TS-1FG484	M2GL090TS-FG484I	M2GL090TS-1FG676I
M2GL150TS-FCV484	M2GL050TS-1FG484	M2GL150TS-FCS536I	M2GL050TS-1FG896I
M2GL010TS-FG484	M2GL060TS-1FG484	M2GL060TS-FG676I	M2GL150TS-1FC1152I

M2GL025TS-FG484	M2GL090TS-1FG484	M2GL090TS-FG676I	M2GL010T-1FG484M
M2GL050TS-FG484	M2GL150TS-1FCS536	M2GL050TS-FG896I	M2GL025T-1FG484M
M2GL060TS-FG484	M2GL060TS-1FG676	M2GL150TS-FC1152I	M2GL050T-1FG484M
M2GL090TS-FG484	M2GL090TS-1FG676	M2GL005-1TQ144I	M2GL060T-1FG484M
M2GL150TS-FCS536	M2GL050TS-1FG896	M2GL010-1TQ144I	M2GL090T-1FG484M
M2GL060TS-FG676	M2GL150TS-1FC1152	M2GL005-1VF256I	M2GL150T-1FC1152M
M2GL090TS-FG676	M2GL005-TQ144I	M2GL010-1VF256I	M2GL010TS-1FG484M
M2GL050TS-FG896	M2GL010-TQ144I	M2GL025-1VF256I	M2GL025TS-1FG484M
M2GL150TS-FC1152	M2GL005-VF256I	M2GL025-1FCS325I	M2GL050TS-1FG484M
M2GL005-1TQ144	M2GL010-VF256I	M2GL050-1FCS325I	M2GL060TS-1FG484M
M2GL010-1TQ144	M2GL025-VF256I	M2GL060-1FCS325I	M2GL090TS-1FG484M
M2GL005-1VF256	M2GL025-FCS325I	M2GL090-1FCS325I	M2GL150TS-1FC1152M
Affected Devices in IGLOO2 Family with Lead-Free Parts			
M2GL005-TQG144	M2GL090-1FCSG325	M2GL010-FGG484I	M2GL050-1FGG896I
M2GL010-TQG144	M2GL005-1VFG400	M2GL025-FGG484I	M2GL150-1FCG1152I
M2GL005-VFG256	M2GL010-1VFG400	M2GL050-FGG484I	M2GL010T-1VFG256I
M2GL010-VFG256	M2GL025-1VFG400	M2GL060-FGG484I	M2GL025T-1VFG256I
M2GL025-VFG256	M2GL050-1VFG400	M2GL090-FGG484I	M2GL025T-1FCSG325I
M2GL025-FCSG325	M2GL060-1VFG400	M2GL150-FCSG536I	M2GL050T-1FCSG325I
M2GL050-FCSG325	M2GL150-1FCVG484	M2GL060-FGG676I	M2GL060T-1FCSG325I
M2GL060-FCSG325	M2GL005-1FGG484	M2GL090-FGG676I	M2GL090T-1FCSG325I
M2GL090-FCSG325	M2GL010-1FGG484	M2GL050-FGG896I	M2GL010T-1VFG400I
M2GL005-VFG400	M2GL025-1FGG484	M2GL150-FCG1152I	M2GL025T-1VFG400I
M2GL010-VFG400	M2GL050-1FGG484	M2GL010T-VFG256I	M2GL050T-1VFG400I
M2GL025-VFG400	M2GL060-1FGG484	M2GL025T-VFG256I	M2GL060T-1VFG400I
M2GL050-VFG400	M2GL090-1FGG484	M2GL025T-FCSG325I	M2GL150T-1FCVG484I
M2GL060-VFG400	M2GL150-1FCSG536	M2GL050T-FCSG325I	M2GL010T-1FGG484I
M2GL150-FCVG484	M2GL060-1FGG676	M2GL060T-FCSG325I	M2GL025T-1FGG484I
M2GL005-FGG484	M2GL090-1FGG676	M2GL090T-FCSG325I	M2GL050T-1FGG484I
M2GL010-FGG484	M2GL050-1FGG896	M2GL010T-VFG400I	M2GL060T-1FGG484I
M2GL025-FGG484	M2GL150-1FCG1152	M2GL025T-VFG400I	M2GL090T-1FGG484I
M2GL050-FGG484	M2GL010T-1VFG256	M2GL050T-VFG400I	M2GL150T-1FCSG536I
M2GL060-FGG484	M2GL025T-1VFG256	M2GL060T-VFG400I	M2GL060T-1FGG676I

M2GL090-FGG484	M2GL025T-1FCSG325	M2GL150T-FCVG484I	M2GL090T-1FGG676I
M2GL150-FCSG536	M2GL050T-1FCSG325	M2GL010T-FGG484I	M2GL050T-1FGG896I
M2GL060-FGG676	M2GL060T-1FCSG325	M2GL025T-FGG484I	M2GL150T-1FCG1152I
M2GL090-FGG676	M2GL090T-1FCSG325	M2GL050T-FGG484I	M2GL005S-1TQG144I
M2GL050-FGG896	M2GL010T-1VFG400	M2GL060T-FGG484I	M2GL010S-1TQG144I
M2GL150-FCG1152	M2GL025T-1VFG400	M2GL090T-FGG484I	M2GL005S-1VFG256I
M2GL010T-VFG256	M2GL050T-1VFG400	M2GL150T-FCSG536I	M2GL005S-1VFG400I
M2GL025T-VFG256	M2GL060T-1VFG400	M2GL060T-FGG676I	M2GL005S-1FGG484I
M2GL025T-FCSG325	M2GL150T-1FCVG484	M2GL090T-FGG676I	M2GL010TS-1VFG256I
M2GL050T-FCSG325	M2GL010T-1FGG484	M2GL050T-FGG896I	M2GL025TS-1VFG256I
M2GL060T-FCSG325	M2GL025T-1FGG484	M2GL150T-FCG1152I	M2GL025TS-1FCSG325I
M2GL090T-FCSG325	M2GL050T-1FGG484	M2GL005S-TQG144I	M2GL050TS-1FCSG325I
M2GL010T-VFG400	M2GL060T-1FGG484	M2GL010S-TQG144I	M2GL060TS-1FCSG325I
M2GL025T-VFG400	M2GL090T-1FGG484	M2GL005S-VFG256I	M2GL090TS-1FCSG325I
M2GL050T-VFG400	M2GL150T-1FCSG536	M2GL005S-VFG400I	M2GL010TS-1VFG400I
M2GL060T-VFG400	M2GL060T-1FGG676	M2GL005S-FGG484I	M2GL025TS-1VFG400I
M2GL150T-FCVG484	M2GL090T-1FGG676	M2GL010TS-VFG256I	M2GL050TS-1VFG400I
M2GL010T-FGG484	M2GL050T-1FGG896	M2GL025TS-VFG256I	M2GL060TS-1VFG400I
M2GL025T-FGG484	M2GL150T-1FCG1152	M2GL025TS-FCSG325I	M2GL150TS-1FCVG484I
M2GL050T-FGG484	M2GL005S-1TQG144	M2GL050TS-FCSG325I	M2GL010TS-1FGG484I
M2GL060T-FGG484	M2GL010S-1TQG144	M2GL060TS-FCSG325I	M2GL025TS-1FGG484I
M2GL090T-FGG484	M2GL005S-1VFG256	M2GL090TS-FCSG325I	M2GL050TS-1FGG484I
M2GL150T-FCSG536	M2GL005S-1VFG400	M2GL010TS-VFG400I	M2GL060TS-1FGG484I
M2GL060T-FGG676	M2GL005S-1FGG484	M2GL025TS-VFG400I	M2GL090TS-1FGG484I
M2GL090T-FGG676	M2GL010TS-1VFG256	M2GL050TS-VFG400I	M2GL150TS-1FCSG536I
M2GL050T-FGG896	M2GL025TS-1VFG256	M2GL060TS-VFG400I	M2GL060TS-1FGG676I
M2GL150T-FCG1152	M2GL025TS-1FCSG325	M2GL150TS-FCVG484I	M2GL090TS-1FGG676I
M2GL005S-TQG144	M2GL050TS-1FCSG325	M2GL010TS-FGG484I	M2GL050TS-1FGG896I
M2GL010S-TQG144	M2GL060TS-1FCSG325	M2GL025TS-FGG484I	M2GL150TS-1FCG1152I
M2GL005S-VFG256	M2GL090TS-1FCSG325	M2GL050TS-FGG484I	M2GL010T-1FGG484M
M2GL005S-VFG400	M2GL010TS-1VFG400	M2GL060TS-FGG484I	M2GL025T-1FGG484M
M2GL005S-FGG484	M2GL025TS-1VFG400	M2GL090TS-FGG484I	M2GL050T-1FGG484M
M2GL010TS-VFG256	M2GL050TS-1VFG400	M2GL150TS-FCSG536I	M2GL060T-1FGG484M
M2GL025TS-VFG256	M2GL060TS-1VFG400	M2GL060TS-FGG676I	M2GL090T-1FGG484M

M2GL025TS-FCSG325	M2GL150TS-1FCVG484	M2GL090TS-FGG676I	M2GL150T-1FCG1152M
M2GL050TS-FCSG325	M2GL010TS-1FGG484	M2GL050TS-FGG896I	M2GL010TS-1FGG484M
M2GL060TS-FCSG325	M2GL025TS-1FGG484	M2GL150TS-FCG1152I	M2GL025TS-1FGG484M
M2GL090TS-FCSG325	M2GL050TS-1FGG484	M2GL005-1TQG144I	M2GL050TS-1FGG484M
M2GL010TS-VFG400	M2GL060TS-1FGG484	M2GL010-1TQG144I	M2GL060TS-1FGG484M
M2GL025TS-VFG400	M2GL090TS-1FGG484	M2GL005-1VFG256I	M2GL090TS-1FGG484M
M2GL050TS-VFG400	M2GL150TS-1FCSG536	M2GL010-1VFG256I	M2GL150TS-1FCG1152M
M2GL060TS-VFG400	M2GL060TS-1FGG676	M2GL025-1VFG256I	M2GL005-1FGG484T1
M2GL150TS-FCVG484	M2GL090TS-1FGG676	M2GL025-1FCSG325I	M2GL010-1FGG484T1
M2GL010TS-FGG484	M2GL050TS-1FGG896	M2GL050-1FCSG325I	M2GL025-1FGG484T1
M2GL025TS-FGG484	M2GL150TS-1FCG1152	M2GL060-1FCSG325I	M2GL060-1FGG484T1
M2GL050TS-FGG484	M2GL005-TQG144I	M2GL090-1FCSG325I	M2GL090-1FGG484T1
M2GL060TS-FGG484	M2GL010-TQG144I	M2GL005-1VFG400I	M2GL005S-1FGG484T2
M2GL090TS-FGG484	M2GL005-VFG256I	M2GL010-1VFG400I	M2GL010TS-1FGG484T2
M2GL150TS-FCSG536	M2GL010-VFG256I	M2GL025-1VFG400I	M2GL025TS-1FGG484T2
M2GL060TS-FGG676	M2GL025-VFG256I	M2GL050-1VFG400I	M2GL060TS-1FGG484T2
M2GL090TS-FGG676	M2GL025-FCSG325I	M2GL060-1VFG400I	M2GL090TS-1FGG484T2
M2GL050TS-FGG896	M2GL050-FCSG325I	M2GL150-1FCVG484I	M2GL005S-1VFG256T2
M2GL150TS-FCG1152	M2GL060-FCSG325I	M2GL005-1FGG484I	M2GL010TS-1VFG256T2
M2GL005-1TQG144	M2GL090-FCSG325I	M2GL010-1FGG484I	M2GL025TS-1VFG256T2
M2GL010-1TQG144	M2GL005-VFG400I	M2GL025-1FGG484I	M2GL005S-1VFG400T2
M2GL005-1VFG256	M2GL010-VFG400I	M2GL050-1FGG484I	M2GL010TS-1VFG400T2
M2GL010-1VFG256	M2GL025-VFG400I	M2GL060-1FGG484I	M2GL025TS-1VFG400T2
M2GL025-1VFG256	M2GL050-VFG400I	M2GL090-1FGG484I	M2GL060TS-1VFG400T2
M2GL025-1FCSG325	M2GL060-VFG400I	M2GL150-1FCSG536I	M2GL060TS-1FGG676T2
M2GL050-1FCSG325	M2GL150-FCVG484I	M2GL060-1FGG676I	M2GL090TS-1FGG676T2
M2GL060-1FCSG325	M2GL005-FGG484I	M2GL090-1FGG676I	
Affected Devices in SmartFusion2 Family with Lead Parts			
M2S005-TQ144	M2S010-1VF256	M2S050-FCS325I	M2S005-1VF400I
M2S010-TQ144	M2S025-1VF256	M2S060-FCS325I	M2S010-1VF400I
M2S005-VF256	M2S025-1FCS325	M2S090-FCS325I	M2S025-1VF400I
M2S010-VF256	M2S050-1FCS325	M2S005-VF400I	M2S050-1VF400I
M2S025-VF256	M2S060-1FCS325	M2S010-VF400I	M2S060-1VF400I

M2S025-FCS325	M2S090-1FCS325	M2S025-VF400I	M2S150-1FCV484I
M2S050-FCS325	M2S005-1VF400	M2S050-VF400I	M2S005-1FG484I
M2S060-FCS325	M2S010-1VF400	M2S060-VF400I	M2S010-1FG484I
M2S090-FCS325	M2S025-1VF400	M2S150-FCV484I	M2S025-1FG484I
M2S005-VF400	M2S050-1VF400	M2S005-FG484I	M2S050-1FG484I
M2S010-VF400	M2S060-1VF400	M2S010-FG484I	M2S060-1FG484I
M2S025-VF400	M2S150-1FCV484	M2S025-FG484I	M2S090-1FG484I
M2S050-VF400	M2S005-1FG484	M2S050-FG484I	M2S150-1FCS536I
M2S060-VF400	M2S010-1FG484	M2S060-FG484I	M2S060-1FG676I
M2S150-FCV484	M2S025-1FG484	M2S090-FG484I	M2S090-1FG676I
M2S005-FG484	M2S050-1FG484	M2S150-FCS536I	M2S050-1FG896I
M2S010-FG484	M2S060-1FG484	M2S060-FG676I	M2S150-1FC1152I
M2S025-FG484	M2S090-1FG484	M2S090-FG676I	M2S010T-1VF256I
M2S050-FG484	M2S150-1FCS536	M2S050-FG896I	M2S025T-1VF256I
M2S060-FG484	M2S060-1FG676	M2S150-FC1152I	M2S025T-1FCS325I
M2S090-FG484	M2S090-1FG676	M2S010T-VF256I	M2S050T-1FCS325I
M2S150-FCS536	M2S050-1FG896	M2S025T-VF256I	M2S060T-1FCS325I
M2S060-FG676	M2S150-1FC1152	M2S025T-FCS325I	M2S090T-1FCS325I
M2S090-FG676	M2S010T-1VF256	M2S050T-FCS325I	M2S010T-1VF400I
M2S050-FG896	M2S025T-1VF256	M2S060T-FCS325I	M2S025T-1VF400I
M2S150-FC1152	M2S025T-1FCS325	M2S090T-FCS325I	M2S050T-1VF400I
M2S010T-VF256	M2S050T-1FCS325	M2S010T-VF400I	M2S060T-1VF400I
M2S025T-VF256	M2S060T-1FCS325	M2S025T-VF400I	M2S150T-1FCV484I
M2S025T-FCS325	M2S090T-1FCS325	M2S050T-VF400I	M2S010T-1FG484I
M2S050T-FCS325	M2S010T-1VF400	M2S060T-VF400I	M2S025T-1FG484I
M2S060T-FCS325	M2S025T-1VF400	M2S150T-FCV484I	M2S050T-1FG484I
M2S090T-FCS325	M2S050T-1VF400	M2S010T-FG484I	M2S060T-1FG484I
M2S010T-VF400	M2S060T-1VF400	M2S025T-FG484I	M2S090T-1FG484I
M2S025T-VF400	M2S150T-1FCV484	M2S050T-FG484I	M2S150T-1FCS536I
M2S050T-VF400	M2S010T-1FG484	M2S060T-FG484I	M2S060T-1FG676I
M2S060T-VF400	M2S025T-1FG484	M2S090T-FG484I	M2S090T-1FG676I
M2S150T-FCV484	M2S050T-1FG484	M2S150T-FCS536I	M2S050T-1FG896I
M2S010T-FG484	M2S060T-1FG484	M2S060T-FG676I	M2S150T-1FC1152I
M2S025T-FG484	M2S090T-1FG484	M2S090T-FG676I	M2S005S-1TQ144I

M2S050T-FG484	M2S150T-1FCS536	M2S050T-FG896I	M2S010S-1TQ144I
M2S060T-FG484	M2S060T-1FG676	M2S150T-FC1152I	M2S005S-1VF256I
M2S090T-FG484	M2S090T-1FG676	M2S005S-TQ144I	M2S005S-1VF400I
M2S150T-FCS536	M2S050T-1FG896	M2S010S-TQ144I	M2S005S-1FG484I
M2S060T-FG676	M2S150T-1FC1152	M2S005S-VF256I	M2S010TS-1VF256I
M2S090T-FG676	M2S005S-1TQ144	M2S005S-VF400I	M2S025TS-1VF256I
M2S050T-FG896	M2S010S-1TQ144	M2S005S-FG484I	M2S025TS-1FCS325I
M2S150T-FC1152	M2S005S-1VF256	M2S010TS-VF256I	M2S050TS-1FCS325I
M2S005S-TQ144	M2S005S-1VF400	M2S025TS-VF256I	M2S060TS-1FCS325I
M2S010S-TQ144	M2S005S-1FG484	M2S025TS-FCS325I	M2S090TS-1FCS325I
M2S005S-VF256	M2S010TS-1VF256	M2S050TS-FCS325I	M2S010TS-1VF400I
M2S005S-VF400	M2S025TS-1VF256	M2S060TS-FCS325I	M2S025TS-1VF400I
M2S005S-FG484	M2S025TS-1FCS325	M2S090TS-FCS325I	M2S050TS-1VF400I
M2S010TS-VF256	M2S050TS-1FCS325	M2S010TS-VF400I	M2S060TS-1VF400I
M2S025TS-VF256	M2S060TS-1FCS325	M2S025TS-VF400I	M2S150TS-1FCV484I
M2S025TS-FCS325	M2S090TS-1FCS325	M2S050TS-VF400I	M2S010TS-1FG484I
M2S050TS-FCS325	M2S010TS-1VF400	M2S060TS-VF400I	M2S025TS-1FG484I
M2S060TS-FCS325	M2S025TS-1VF400	M2S150TS-FCV484I	M2S050TS-1FG484I
M2S090TS-FCS325	M2S050TS-1VF400	M2S010TS-FG484I	M2S060TS-1FG484I
M2S010TS-VF400	M2S060TS-1VF400	M2S025TS-FG484I	M2S090TS-1FG484I
M2S025TS-VF400	M2S150TS-1FCV484	M2S050TS-FG484I	M2S150TS-1FCS536I
M2S050TS-VF400	M2S010TS-1FG484	M2S060TS-FG484I	M2S060TS-1FG676I
M2S060TS-VF400	M2S025TS-1FG484	M2S090TS-FG484I	M2S090TS-1FG676I
M2S150TS-FCV484	M2S050TS-1FG484	M2S150TS-FCS536I	M2S050TS-1FG896I
M2S010TS-FG484	M2S060TS-1FG484	M2S060TS-FG676I	M2S150TS-1FC1152I
M2S025TS-FG484	M2S090TS-1FG484	M2S090TS-FG676I	M2S010T-1FG484M
M2S050TS-FG484	M2S150TS-1FCS536	M2S050TS-FG896I	M2S025T-1FG484M
M2S060TS-FG484	M2S060TS-1FG676	M2S150TS-FC1152I	M2S050T-1FG484M
M2S090TS-FG484	M2S090TS-1FG676	M2S005-1TQ144I	M2S060T-1FG484M
M2S150TS-FCS536	M2S050TS-1FG896	M2S010-1TQ144I	M2S090T-1FG484M
M2S060TS-FG676	M2S150TS-1FC1152	M2S005-1VF256I	M2S150T-1FC1152M
M2S090TS-FG676	M2S005-TQ144I	M2S010-1VF256I	M2S010TS-1FG484M
M2S050TS-FG896	M2S010-TQ144I	M2S025-1VF256I	M2S025TS-1FG484M
M2S150TS-FC1152	M2S005-VF256I	M2S025-1FCS325I	M2S050TS-1FG484M

M2S005-1TQ144	M2S010-VF256I	M2S050-1FCS325I	M2S060TS-1FG484M
M2S010-1TQ144	M2S025-VF256I	M2S060-1FCS325I	M2S090TS-1FG484M
M2S005-1VF256	M2S025-FCS325I	M2S090-1FCS325I	M2S150TS-1FC1152M
Affected Devices in SmartFusion2 Family with Lead-Free Parts			
M2S005-TQG144	M2S060-1FCSG325	M2S150-FCVG484I	M2S150-1FCSG536I
M2S010-TQG144	M2S090-1FCSG325	M2S005-FGG484I	M2S060-1FGG676I
M2S005-VFG256	M2S005-1VFG400	M2S010-FGG484I	M2S090-1FGG676I
M2S010-VFG256	M2S010-1VFG400	M2S025-FGG484I	M2S050-1FGG896I
M2S025-VFG256	M2S025-1VFG400	M2S050-FGG484I	M2S150-1FCG1152I
M2S025-FCSG325	M2S050-1VFG400	M2S060-FGG484I	M2S010T-1VFG256I
M2S050-FCSG325	M2S060-1VFG400	M2S090-FGG484I	M2S025T-1VFG256I
M2S060-FCSG325	M2S150-1FCVG484	M2S150-FCSG536I	M2S025T-1FCSG325I
M2S090-FCSG325	M2S005-1FGG484	M2S060-FGG676I	M2S050T-1FCSG325I
M2S005-VFG400	M2S010-1FGG484	M2S090-FGG676I	M2S060T-1FCSG325I
M2S010-VFG400	M2S025-1FGG484	M2S050-FGG896I	M2S090T-1FCSG325I
M2S025-VFG400	M2S050-1FGG484	M2S150-FCG1152I	M2S010T-1VFG400I
M2S050-VFG400	M2S060-1FGG484	M2S010T-VFG256I	M2S025T-1VFG400I
M2S060-VFG400	M2S090-1FGG484	M2S025T-VFG256I	M2S050T-1VFG400I
M2S150-FCVG484	M2S150-1FCSG536	M2S025T-FCSG325I	M2S060T-1VFG400I
M2S005-FGG484	M2S060-1FGG676	M2S050T-FCSG325I	M2S150T-1FCVG484I
M2S010-FGG484	M2S090-1FGG676	M2S060T-FCSG325I	M2S010T-1FGG484I
M2S025-FGG484	M2S050-1FGG896	M2S090T-FCSG325I	M2S025T-1FGG484I
M2S050-FGG484	M2S150-1FCG1152	M2S010T-VFG400I	M2S050T-1FGG484I
M2S060-FGG484	M2S010T-1VFG256	M2S025T-VFG400I	M2S060T-1FGG484I
M2S090-FGG484	M2S025T-1VFG256	M2S050T-VFG400I	M2S090T-1FGG484I
M2S150-FCSG536	M2S025T-1FCSG325	M2S060T-VFG400I	M2S150T-1FCSG536I
M2S060-FGG676	M2S050T-1FCSG325	M2S150T-FCVG484I	M2S060T-1FGG676I
M2S090-FGG676	M2S060T-1FCSG325	M2S010T-FGG484I	M2S090T-1FGG676I
M2S050-FGG896	M2S090T-1FCSG325	M2S025T-FGG484I	M2S050T-1FGG896I
M2S150-FCG1152	M2S010T-1VFG400	M2S050T-FGG484I	M2S150T-1FCG1152I
M2S010T-VFG256	M2S025T-1VFG400	M2S060T-FGG484I	M2S005S-1TQG144I
M2S025T-VFG256	M2S050T-1VFG400	M2S090T-FGG484I	M2S010S-1TQG144I
M2S025T-FCSG325	M2S060T-1VFG400	M2S150T-FCSG536I	M2S005S-1VFG256I

M2S050T-FCSG325	M2S150T-1FCVG484	M2S060T-FGG676I	M2S005S-1VFG400I
M2S060T-FCSG325	M2S010T-1FGG484	M2S090T-FGG676I	M2S005S-1FGG484I
M2S090T-FCSG325	M2S025T-1FGG484	M2S050T-FGG896I	M2S010TS-1VFG256I
M2S010T-VFG400	M2S050T-1FGG484	M2S150T-FCG1152I	M2S025TS-1VFG256I
M2S025T-VFG400	M2S060T-1FGG484	M2S005S-TQG144I	M2S025TS-1FCSG325I
M2S050T-VFG400	M2S090T-1FGG484	M2S010S-TQG144I	M2S050TS-1FCSG325I
M2S060T-VFG400	M2S150T-1FCSG536	M2S005S-VFG256I	M2S060TS-1FCSG325I
M2S150T-FCVG484	M2S060T-1FGG676	M2S005S-VFG400I	M2S090TS-1FCSG325I
M2S010T-FGG484	M2S090T-1FGG676	M2S005S-FGG484I	M2S010TS-1VFG400I
M2S025T-FGG484	M2S050T-1FGG896	M2S010TS-VFG256I	M2S025TS-1VFG400I
M2S050T-FGG484	M2S150T-1FCG1152	M2S025TS-VFG256I	M2S050TS-1VFG400I
M2S060T-FGG484	M2S005S-1TQG144	M2S025TS-FCSG325I	M2S060TS-1VFG400I
M2S090T-FGG484	M2S010S-1TQG144	M2S050TS-FCSG325I	M2S150TS-1FCVG484I
M2S150T-FCSG536	M2S005S-1VFG256	M2S060TS-FCSG325I	M2S010TS-1FGG484I
M2S060T-FGG676	M2S005S-1VFG400	M2S090TS-FCSG325I	M2S025TS-1FGG484I
M2S090T-FGG676	M2S005S-1FGG484	M2S010TS-VFG400I	M2S050TS-1FGG484I
M2S050T-FGG896	M2S010TS-1VFG256	M2S025TS-VFG400I	M2S060TS-1FGG484I
M2S150T-FCG1152	M2S025TS-1VFG256	M2S050TS-VFG400I	M2S090TS-1FGG484I
M2S005S-TQG144	M2S025TS-1FCSG325	M2S060TS-VFG400I	M2S150TS-1FCSG536I
M2S010S-TQG144	M2S050TS-1FCSG325	M2S150TS-FCVG484I	M2S060TS-1FGG676I
M2S005S-VFG256	M2S060TS-1FCSG325	M2S010TS-FGG484I	M2S090TS-1FGG676I
M2S005S-VFG400	M2S090TS-1FCSG325	M2S025TS-FGG484I	M2S050TS-1FGG896I
M2S005S-FGG484	M2S010TS-1VFG400	M2S050TS-FGG484I	M2S150TS-1FCG1152I
M2S010TS-VFG256	M2S025TS-1VFG400	M2S060TS-FGG484I	M2S010T-1FGG484M
M2S025TS-VFG256	M2S050TS-1VFG400	M2S090TS-FGG484I	M2S025T-1FGG484M
M2S025TS-FCSG325	M2S060TS-1VFG400	M2S150TS-FCSG536I	M2S050T-1FGG484M
M2S050TS-FCSG325	M2S150TS-1FCVG484	M2S060TS-FGG676I	M2S060T-1FGG484M
M2S060TS-FCSG325	M2S010TS-1FGG484	M2S090TS-FGG676I	M2S090T-1FGG484M
M2S090TS-FCSG325	M2S025TS-1FGG484	M2S050TS-FGG896I	M2S150T-1FCG1152M
M2S010TS-VFG400	M2S050TS-1FGG484	M2S150TS-FCG1152I	M2S010TS-1FGG484M
M2S025TS-VFG400	M2S060TS-1FGG484	M2S005S-1TQG144I	M2S025TS-1FGG484M
M2S050TS-VFG400	M2S090TS-1FGG484	M2S010S-1TQG144I	M2S050TS-1FGG484M
M2S060TS-VFG400	M2S150TS-1FCSG536	M2S005S-1VFG256I	M2S060TS-1FGG484M
M2S150TS-FCVG484	M2S060TS-1FGG676	M2S010S-1VFG256I	M2S090TS-1FGG484M

M2S010TS-FGG484	M2S090TS-1FGG676	M2S025-1VFG256I	M2S150TS-1FCG1152M
M2S025TS-FGG484	M2S050TS-1FGG896	M2S025-1FCSG325I	M2S005S-1FGG484T2
M2S050TS-FGG484	M2S150TS-1FCG1152	M2S050-1FCSG325I	M2S010TS-1FGG484T2
M2S060TS-FGG484	M2S005-TQG144I	M2S060-1FCSG325I	M2S025TS-1FGG484T2
M2S090TS-FGG484	M2S010-TQG144I	M2S090-1FCSG325I	M2S060TS-1FGG484T2
M2S150TS-FCSG536	M2S005-VFG256I	M2S005-1VFG400I	M2S090TS-1FGG484T2
M2S060TS-FGG676	M2S010-VFG256I	M2S010-1VFG400I	M2S005S-1VFG256T2
M2S090TS-FGG676	M2S025-VFG256I	M2S025-1VFG400I	M2S010TS-1VFG256T2
M2S050TS-FGG896	M2S025-FCSG325I	M2S050-1VFG400I	M2S025TS-1VFG256T2
M2S150TS-FCG1152	M2S050-FCSG325I	M2S060-1VFG400I	M2S005S-1VFG400T2
M2S005-1TQG144	M2S060-FCSG325I	M2S150-1FCVG484I	M2S010TS-1VFG400T2
M2S010-1TQG144	M2S090-FCSG325I	M2S005-1FGG484I	M2S025TS-1VFG400T2
M2S005-1VFG256	M2S005-VFG400I	M2S010-1FGG484I	M2S060TS-1VFG400T2
M2S010-1VFG256	M2S010-VFG400I	M2S025-1FGG484I	M2S060TS-1FGG676T2
M2S025-1VFG256	M2S025-VFG400I	M2S050-1FGG484I	M2S090TS-1FGG676T2
M2S025-1FCSG325	M2S050-VFG400I	M2S060-1FGG484I	
M2S050-1FCSG325	M2S060-VFG400I	M2S090-1FGG484I	



Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo,
CA 92656 USA

Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996

© 2015 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; security technologies and scalable anti-tamper products; Ethernet Solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 3,600 employees globally. Learn more at www.microsemi.com.

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.