Selection Guide

HiRel: High reliability components for space use

Infineon Technologies is an important supplier of discrete semiconductor devices for the high-reliability community and has an excellent reputation in space community for over 40 years.

The device family includes radiation hard PowerMOS transistors, PN-, PIN- and Schottky-Diodes as well as microwave transistors. Based on the unique Infineon CoolMOS™ technology the radiation hard PowerMOS transistors are world wide benchmark for 250 V and 150 V devices in radiation hardness and electrical performance. The TID hardness is specified up to 100 krad (300 krad on request) and SEE was tested up to LET55 with Xe and LET84 with Au ions.

Contrary to the high-volume markets where low-cost plastic packages are used, the semiconductor dies are assembled in hermetically sealed packages to create HiRel standard products for professional applications. It should be stressed, however, that these HiRel components take full advantage of the stabilized mass production of wafers for the consumer and commercial markets.

The wafers are selected from the best controlled volume production and have to pass special additional acceptance tests.

All HiRel devices are also available as qualified chip (bare die) from specially approved and reserved wafers. Based on their proven reliability, the components are best suited for the use in space applications.

Infineon HiRel Components are offered in different quality levels:
› “P” for professional level used in Engineering Modules (EM)
› “ES” for ESA space level for ESA satellites Flight Modules (FM)

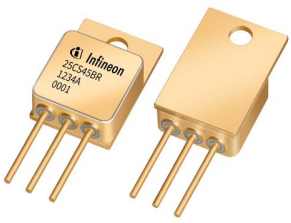
Package overview

Micro-X

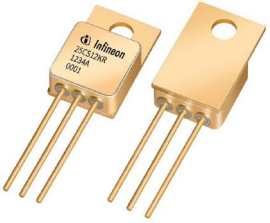
SMD0.5

SMD2

TO254AA



TO257AA



www.infineon.com/space

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Product overview

HiRel radiation hard PowerMOS transistors

Product type	Package	V_{DS} (max) [V]	$R_{DS(on)}$ (typ) [mΩ]	Q_G (max) [nC]	I_D (max) [A]	I_{Dpuls} (max) [A]	P_{tot} (max) [W]	V_{GS} (max) [V]	ESA QPL
BUY25CS54A-01 (ql)	SMD2	250	25	150	54.0	214	250	± 20	5205 027
BUY25CS12J-01 (ql)	SMD0.5	250	110	25	12.4	50	75	± 20	5205 026
BUY25CS45B-01 (ql)	TO254AA	250	45	70	45.0	180	208	± 20	5205 030 03
BUY25CS12K-01 (ql)	TO257AA	250	120	25	12.4	50	75	± 20	5205 030 01
Chip L5491A (ql)	Chip for BUY25CS54A	250	25	150	54.0	214	–	± 20	N/A
Chip L5490 (ql)	Chip for BUY25CS12J	250	110	25	12.4	50	–	± 20	N/A
BUY15CS57A-01 (ql)	SMD2	150	9	160	57.0	224	250	± 20	5205 031 02
BUY15CS23J-01 (ql)	SMD0.5	150	55	25	23.0	93	75	± 20	5205 031 01
BUY15CS45B-01 (ql)	TO254AAA	150	23	75	45.0	180	208	± 20	5205 031 04
BUY15CS23K-01 (ql)	TO257AA (DSG)	150	55	25	23.0	93	75	± 20	5205 031 03
Chip L5461A (ql)	Chip for BUY15CS57A	150	23	75	57.0	224	–	± 20	N/A
Chip L5462A (ql)	Chip for BUY15CS23J	150	55	25	23.0	93	–	± 20	N/A

All devices are also available as qualified chip (bare die).

HiRel silicon diodes

Product type	Package	V_{BR} (min) [V]	I_F (max) [mA]	R_F (typ) [Ω]	τ (typ) [ns]	C_T (max) [pF]	ESA QPL
BAS40-T1 (ql)	T1	40	120	10.0	–	5.00	Yes
BAS70-T1 (ql)	T1	70	120	9.0	–	1.50	Yes
BXY42-T1 (ql)	T1	50	5000	1.0	60	0.24	Yes
BXY43-T1 (ql)	T1	150	400	0.9	700	0.30	Yes

HiRel silicon bipolar transistors

Product type	Package	V_{CEO} (max) [V]	I_C (max) [mA]	P_{tot} (max) [mW]	f_T (typ) [GHz]	NF (typ) [dB]	ESA QPL
BFY181 (ql)	Micro-X	12.0	20	175	8.0	2.5 @ 2.0 GHz	Yes
BFY182 (ql)	Micro-X	12.0	35	250	8.0	2.5 @ 2.0 GHz	Yes
BFY183 (ql)	Micro-X	12.0	65	450	8.0	2.5 @ 2.0 GHz	Yes
BFY193C (ql)	Micro-X	12.0	80	580	8.0	2.5 @ 2.0 GHz	Yes
BFY196 (ql)	Micro-X	12.0	100	700	6.5	3.2 @ 2.0 GHz	Yes
BFY405 (ql)	Micro-X	4.5	12	55	22.0	1.2 @ 1.8 GHz	Yes
BFY420 (ql)	Micro-X	4.5	35	160	22.0	1.2 @ 1.8 GHz	Yes
BFY450 (ql)	Micro-X	4.5	100	450	22.0	1.4 @ 1.8 GHz	Yes
BFY640-04 (ql)	Micro-X	4.0	50	200	40.0	0.7 @ 1.8 GHz	Yes
BFY650B-11 (ql)	Micro-X	4.0	150	600	40.0	0.9 @ 1.8 Ghz	Yes
BFY740B-01 (ql)	Micro-X	4.0	30	120	42.0	0.9 @ 6.0 GHz	Yes
T359C (ql)	Chip for (BFY193C)	–	–	–	–	–	N/A
T395 (ql)	Chip for (BFY196)	–	–	–	–	–	N/A
T502 (ql)	Chip for (BFY420)	–	–	–	–	–	N/A
T503 (ql)	Chip for (BFY450)	–	–	–	–	–	N/A

All devices are also available as qualified chip (bare die).
ql = quality level:

- "P" for professional level used in Engineering Modules (EM)
- "ES" for ESA space level for ESA satellites Flight Modules (FM)

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