Rad hard MOSFETs & ICs product selector

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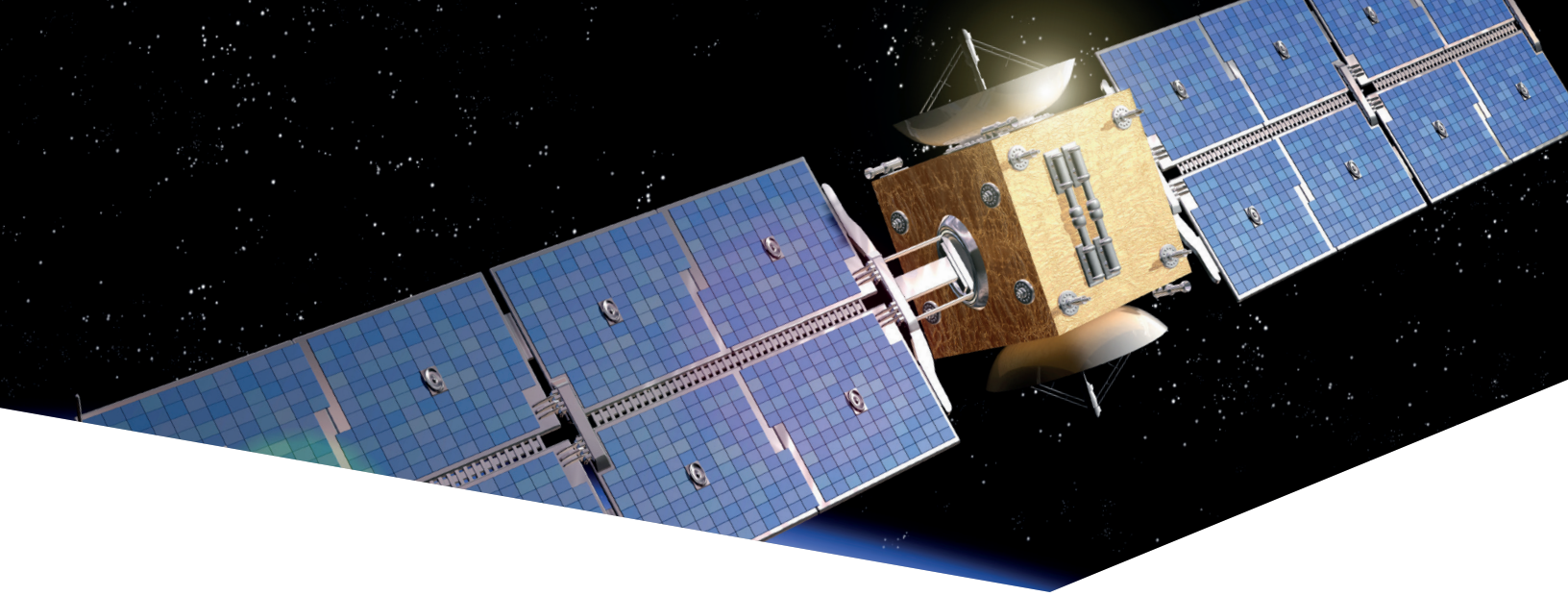
Infineon

With the introduction of the industry's first rad hard MOSFET in 1987 to its latest generation of devices, IR HiRel has continually exceeded engineers' expectations.

Contents



High reliability power conversion solutions for space

Space and other harsh environment applications pose unique challenges for system designers. Electronics must be able to withstand severe thermal, mechanical, and radiation conditions with expected lifespans measured in decades.

Infineon, along with its IR HiRel subsidiary, is your source for high reliability electronics for space use. We offer a unique portfolio of high reliability, radiation-hardened (rad hard) power management solutions for extreme environments, such as those found in space, aerospace, defense and other industries. Our extensive portfolio includes:

- Standard and custom high reliability, rad hard and rugged discretes and integrated circuits
- Microwave transistors and diodes
- Other space components

Our HiRel products are used throughout spacecraft electrical power systems, and proven across thousands of programs globally that are still in flight today. Whether you're designing satellite buses, payloads, RF communications, or other spacecraft systems, we offer a broad selection of rad hard solutions qualified to European Space Agency (ESA) and Defense Logistics Agency (DLA) standards for our global customers.

Decades of space heritage in thousands of programs

An Infineon Technologies company, IR HiRel is a leader in rad hard power MOSFETs, having invented the HEXFET™ MOSFET in 1977 and becoming the first manufacturer to offer rad hard power MOSFETs for space in 1987. Since then, IR HiRel has continuously innovated in silicon design, packaging technology and quality with US DoD DLA QPL products up to MIL-PRF-19500 JANS level.

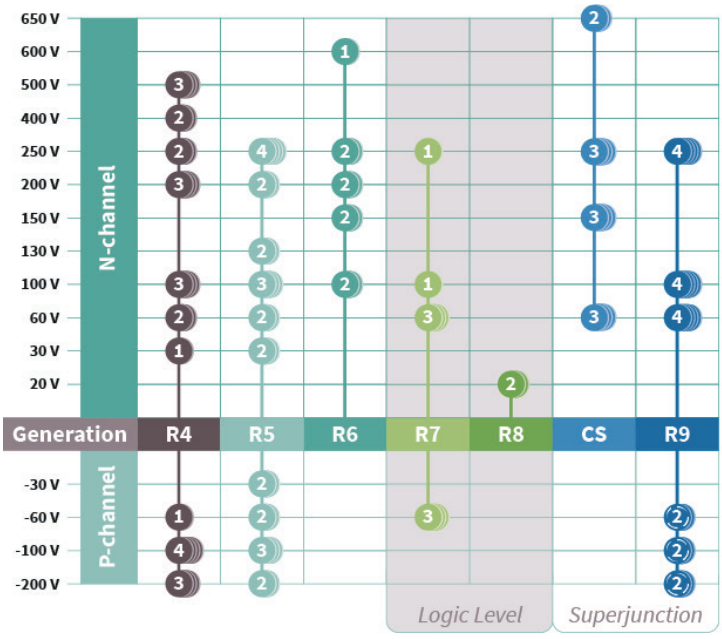
Infineon is likewise renowned globally in the space community for its flight heritage, having qualified the world's first rad hard superjunction MOSFET technology in 2012, and offering device qualification for its rad hard PowerMOS transistor portfolio per ESA ESCC 5000.

Customers benefit from our unparalleled expertise in power MOSFET radiation requirements. Our products and solutions are engineered for optimal performance and longevity in extreme environmental conditions, including exposure to severe ionizing radiation in space. Together, Infineon and IR HiRel offer the broadest portfolio of space power MOSFETs for applications in geosynchronous and geostationary orbit (GEO), Medium Earth Orbit (MEO) and Low Earth Orbit (LEO).

R9 superjunction technology: greater density, lower power losses

Our new R9 superjunction technology platform offers notable size, weight and power improvements over prior rad hard MOSFET generations, delivering superior performance and efficiencies with a well-known gate drive setup. A simple drop-in to the same circuit designs yields immediate efficiency improvements. In systems such as high-throughput satellites, using R9-based rad hard MOSFETs can significantly reduce cost-per-bit ratio. Our radiation-hardened N- and P-channel R9 MOSFETs are engineered for mission-critical applications requiring an operating life up to and beyond 15 years, such as:

- Space-grade DC-DC converters
- Intermediate bus converters
- Motor controllers
- Other high-speed switching designs
- High-side, low frequency load switching
- Overload protection switching



N-channel: 20 V to 650 V
P-channel: -30 V to -200 V

R9	Improved SWaP over prior rad hard MOSFET generations
CS	License-free, based on Infineon CoolMOS™ technology
R8	Designed for low voltage POL designs
R7	Designed for logic level gate drives
R6	Best performance for mid to high-voltage designs
R5	Optimized performance for low to mid-voltage designs
R4	All purpose MOSFET, legacy design with extensive space heritage

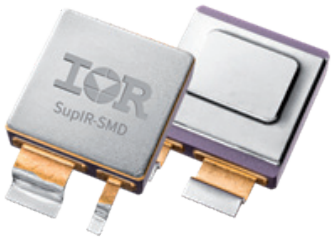
(#) Die sizes available

Advanced packaging simplifies design

System designers are often challenged by making a reliable attachment of surface mount hermetic power packages to PCBs. Thermal expansion mismatch of the board and power package require unique solutions for extreme environment applications.

Our new SupIR-SMD package delivers a superior solution for thermal expansion and heat transfer. This package is JANS qualified in accordance with MIL-PRF-19500, the quality and reliability level required for space applications. The new package offers improved physical performance parameters compared to the nearest packaging solution, the SMD-2 package on a carrier.

IR HiRel has performed board-level qualification testing of the SupIR-SMD, details of which are in IR HiRel's application note 1222.



SupIR-SMD

Screening & QCI

Our customers' applications demand high reliability devices that perform to specification in the harshest environments for 15 years and longer. Mission and product assurance are key priorities. To ensure top performance and operability, our products undergo rigorous screening and quality conformance inspections (QCI).

Infineon and IR HiRel perform 100% screening of all components in accordance with specified quality levels. Additional testing eliminates nonconforming parts, increasing confidence in the reliability of long-lasting, high performance specification compliance.

Our high reliability products also undergo various levels of periodic quality conformance testing. Both the US and European communities have developed specifications detailing quality conformance testing sequence.

- US DLA specifications, MIL-PRF-19500 and MIL-STD-750, govern the quality conformance testing sequence performed on discrete MOSFET semiconductors manufactured to JANS or JANTXV levels.
- In Europe, ESA's ESCC 5000 is the standard for discrete semiconductors, hermetically sealed and die.

We offer rad hard power MOSFETs and diodes with the following screening and QCI levels based on DLA MIL-PRF-19500:

- DLA approved Qualified Product List (QPL) with S-level screenings to MIL-PRF-19500, sold under military part number starting with JAN branded prefix under DLA approved slash sheet. JANS is the most rigorous level of screening and acceptance requirements available to assure the performance, quality and reliability of discrete semiconductors intended for space flight applications.
- IR HiRel's Qualified IR List (QIRL) with S-level equivalent screenings to MIL-PRF-19500, manufactured and tested on the same production line with the same flow as MIL-PRF-19500 DLA approved line. QIRL part numbers have SCS suffixes.
- Source Control Drawing (SCD)
- Commercial off the shelf (COTS) with no QCI

For customers needing ESA ESCC-5000 qualified components, we offer the following quality levels:

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

Process Flow

Product screening flow steps	Specification	JANS (or SCS)	JANTXV (or SCV)	COTS	ESCC 5000
Wafer lot acceptance	MIL-STD-750	✓	✓	✓	✓
Assembly					
Internal visual inspection	MIL-STD-750 TM 2069 / ESCC 5000 F3	✓	✓	✓	✓
Inspection lot accumulation	See note 3	✓	✓	✓	
Screening					
High temperature stabilization bake					✓
Temperature cycling	MIL-STD-750 TM 1051 / ESCC 5000 F3	✓	✓		✓
Constant acceleration	MIL-STD-750 TM 2006 / ESCC 5000 F3	See note 4			
Particle Impact Noise Detection (PIND)	MIL-STD-750 TM 2052 / ESCC 5000 F3	See note 2			✓
Case marking		✓	✓	✓	
Serialization (3.10.9) and case marking		✓			✓
Radiography	MIL-STD-750 TM 2076 / ESCC 5000 F3	✓			✓
Thermal impedance	MIL-STD-750 TM 3161 / ESCC 5000 F3	✓	✓		✓
EAS single pulse avalanche energy	MIL-STD-750 TM 3470 / ESCC 5000 F3	✓	✓		✓
SOA (Safe Operating Area)	MIL-STD-750 TM 3774 / ESCC 5000 F3	✓	✓		✓
Burn-in					
Initial electrical test	See note 1	✓	✓	✓	✓
High Temperature Gate Bias (HTGB)	MIL-STD-750 TM 1042 / ESCC 5000 F3	✓	✓		✓
Interim electrical, delta and PDA (E.5.2)	See note 1	✓	✓		✓
High Temperature Reverse Bias (HTRB)	MIL-STD-750 TM 1042 / ESCC 5000 F3	✓	✓		✓
Final electrical test, delta and PDA (E.5.2)	See note 1	✓	✓		✓
Outlier identification (interim and final)		✓	✓		✓
Final electrical test (hot)	See note 1	✓			✓
Final electrical test (cold)	See note 1	✓			✓
Outlier identification (hot and cold tests)		✓			
QCI sample selection and tests		✓	✓		✓
Finishing					
Solder dip		✓	✓	✓	
Lead form (option)					
Hermetic seal (fine leak detection)	MIL-STD-750 TM 1071 / ESCC 5000 F3	✓	✓	✓	✓
Hermetic seal (gross leak detection)	MIL-STD-750 TM 1071 / ESCC 5000 F3	✓	✓	✓	✓
Case isolation (isolated devices)	MIL-STD-750 TM 1081 / ESCC 5000 F3	✓	✓	✓	
Group A2 electrical test	See note 1	✓			✓
Outlier identification (A2)	See note 1	✓			✓
QC final visual examination	MIL-STD-750 TM 2071 / ESCC 5000 F3	✓	✓	✓	✓
Packaging, labelling and C of C		✓	✓	✓	✓
Configuration audit		✓	✓	✓	✓

Note 1: Electrical test with read and record, test method 3403 (VTH), 3407 (BVDSS), 3411 (IGSS), 3413 (IDSS), 3421 (RDS(on)), and 4011 (VSD) apply. Final electrical test (hot) and (cold) for ESCC 5000 is done on a sample basis of 5 units per lot.

Note 2: 100% PIND. If parts are built with die coat, screen is omitted and tested as part of QCI.

Note 3: JANS inspection lot requirements: Small lot is 1,000 parts or fewer, die must originate from a single wafer lot, and built (sealed) within 31 calendar days. For non-JANS inspection lots, the maximum small lot size is 2,500 units.

Note 4: N/A. Alternate flow approved from DLA, performed as part of wafer lot acceptance

ESCC 5000 European standard for discrete semiconductors, hermetically sealed and die

JANS Screened in accordance with DLA MIL-PRF-19500 standard for discrete components. This is the highest level of testing including the standard tests, the JANTXV tests, plus particle impact noise detection, serialization, failure analysis, and traceability to a wafer lot.

JANTXV Screened in accordance with DLA MIL-PRF-19500 standard for discrete components. This includes the standard tests, plus the TX power and condition tests, and a visual inspection.

SCS IR HiRel QIRL equivalent to JANS screening

SCV IR HiRel QIRL equivalent to JANTXV screening

QCI sample selection & tests

Quality Conformance Inspection	Specification reference	JANS (or SCS)	JANTXV (or SCV)	COTS	ESCC 5000
Group A - electrical verification	MIL-STD-750 / ESCC 5000 F4	✓	✓		✓
Group B - long-term performance verification (JANS)	MIL-STD-750 / ESCC 5000 F4	✓			✓
Group B - long-term performance verification (JANTX, JANTXV)	MIL-STD-750 / ESCC 5000 F4		✓		✓
Group C - packaging, annual (12 month), each package type	MIL-STD-750 / ESCC 5000 F4	✓	✓		✓
Group D - TID acceptance testing, see note 5	MIL-STD-750 / ESCC 5000 F4	✓	✓		✓
Group E - product qualification	MIL-STD-750 / ESCC 5000 F4	✓	✓		✓

Note 5: Wafer lot acceptance testing.

Rad hard MOSFETs

R9 rad hard MOSFET technology

Higher performance and efficiencies with low risk design usage

Part number	BV_{DSS} (V)	Channel	I_d (A)	$R_{DS(on)}$ (mΩ)	Package	Screening	JEDEC	DLA slash sheet
IRHNS9A7264	250	N	82	17	SupIR-SMD	JANS	2N7658U2A	/777*
IRHYB9A7234CM	250	N	17	110	TO-257AA tabless low ohmic	JANS	2N7649D5	/775*
IRHYS9A7234CM	250	N	17	110	TO-257AA low ohmic	JANS	2N7649T3	/775*
IRHNS9A3264	250	N	82	17	SupIR-SMD	JANS	2N7658U2A	/777*
IRHYB9A3234CM	250	N	17	110	TO-257AA Low Ohmic	JANS	2N7649T3	/775*
IRHYS9A3234CM	250	N	17	110	TO-257AA Low Ohmic	JANS	2N7649T3	/775*
IRHNJ9A3234	250	N	17	110	SMD-0.5	JANS	2N7649U3	/775*
IRHNJ9A7234	250	N	17	110	SMD-0.5	JANS	2N7649U3	/775*
IRHMS9A7264	250	N	45	18.5	TO-254AA low ohmic	COTS	2N7658T1	/777*
IRHNKC9A7234	250	N	17	110	SMD-0.5e ceramic lid	JANS	2N7649U3CE	/775*
IRHNMC9A7224	250	N	6	138	SMD-0.2 ceramic lid	JANS	2N7654U8C	/776*
IRHNPC9A7214	250	N	5.5	500	SMD-0.1 ceramic lid	JANS	2N7657xx	TBD*
IRHNS9A7160	100	N	100	6.5	SupIR-SMD	JANS	2N7653U2A	/777*
IRHYB9A7130CM	100	N	30	35	TO-257AA tabless low ohmic	JANS	2N7648D5	/775
IRHYS9A7130CM	100	N	30	35	TO-257AA low ohmic	JANS	2N7648T3	/775
IRHNMC9A7120	100	N	23	55	SMD-0.2 ceramic lid	JANS	2N7651U8C	/776*
IRHNS9A3160	100	N	100	6.5	SupIR-SMD	JANS	2N7653U2A	/777*
IRHYB9A3130CM	100	N	30	35	TO-257AA Tabless Low Ohmic	JANS	2N7648D5	/775*
IRHYS9A3130CM	100	N	30	35	TO-257AA Low Ohmic	JANS	2N7648T3	/775*
IRHNJ9A3130	100	N	35	34	SMD-0.5	JANS	2N7648U3	/775*
IRHNJ9A7130	100	N	35	34	SMD-0.5	JANS	2N7648U3	/775*
IRHNJC9A3130	100	N	35	34	SMD-0.5	JANS	2N7648U3C	/775*
IRHNJC9A7130	100	N	35	34	SMD-0.5	JANS	2N7648U3C	/775*
IRHNM9A3120	100	N	23	55	SMD-0.2	JANS	2N7651U8	/776*
IRHNM9A7120	100	N	23	55	SMD-0.2	JANS	2N7651U8	/776*
IRHNMC9A3120	100	N	23	55	SMD-0.2C	JANS	2N7651U8C	/776*
IRHNKC9A7130	100	N	35	34	SMD-0.5e ceramic lid	JANS	2N7648U3CE	/775*
IRHNPC9A7110	100	N	6	150	SMD-0.1 ceramic lid	JANS	2N7656xx	TBD*
IRHNS9A7064	60	N	100	4	SupIR-SMD	JANS	2N7652U2A	/777*
IRHMS9A7064	60	N	45	7	TO-254AA low ohmic	JANS	2N7652T1	/777*
IRHYS9A7034CM	60	N	30	19	TO-257AA low ohmic	JANS	2N7647T3	/775

Part number	BV_{DSS} (V)	Channel	I_d (A)	$R_{DS(on)}$ (mΩ)	Package	Screening	JEDEC	DLA slash sheet
IRHYB9A7034CM	60	N	30	19	TO-257AA tabless low ohmic	JANS	2N7647D5	/775
IRHNMC9A7024	60	N	25	30	SMD-0.2 ceramic lid	JANS	2N7650U8C	/776*
IRHYB9A3034CM	60	N	30	19	TO-257AA Tabless Low Ohmic	JANS	2N7647D5	/775*
IRHYS9A3034CM	60	N	30	19	TO-257AA Low Ohmic	JANS	2N7647T3	/775*
IRHNJ9A3034	60	N	40	18	SMD-0.5	JANS	2N7647U3	/775*
IRHNS9A3064	60	N	100	4	SupIR-SMD	JANS	2N7652U2A	/777*
IRHNJ9A7034	60	N	40	18	SMD-0.5	JANS	2N7647U3	/775*
IRHNJC9A3034	60	N	40	18	SMD-0.5	JANS	2N7647U3C	/775*
IRHNJC9A7034	60	N	40	18	SMD-0.5	JANS	2N7647U3C	/775*
IRHNMC9A3024	60	N	25	30	SMD-0.2C	JANS	2N7650U8C	/776*
IRHMS9A3064	60	N	45	7	TO-254AA Low Ohmic	JANS	2N7652T1	/777*
IRHNKC9A7034	60	N	40	18	SMD-0.5e ceramic lid	JANS	2N7647U3CE	/775*
IRHNPC9A7014	60	N	9	65	SMD-0.1 ceramic lid	COTS	2N7655xx	TBD*
IRHYS9A93034CM	-60	P	-30	46	TO-257AA Low Ohmic	JANS	2N7659T3	/780*
IRHNKC9A93034	-60	P	-32	45	SMD-0.5e Ceramic Lid	JANS	2N7659U3CE	/780*
IRHNKC9A97034	-60	P	-32	45	SMD-0.5e ceramic lid	JANS	2N7659U3CE	/780*
IRHYS9A97034CM	-60	P	-30	46	TO-257AA Low Ohmic	JANS	2N7659T3	/780*
IRHNS9A97064	-60	P	TBD*	TBD*	SupIR-SMD	JANS	TBD*	TBD*
IRHMS9A97064	-60	P	TBD	TBD	TO-254AA Low Ohmic	JANS	TBD	TBD
IRHNKC9A97130	-100	P	-24	72	SMD-0.5e ceramic lid	JANS	2N7660U3CE	/780*
IRHYS9A97130CM	-100	P	-23	76	TO-257AA low ohmic	JANS	2N7660T3	/780*
IRHYB9A93130CM	-100	P	-23	76	TO-257AA Tabless Low Ohmic	JANS	2N7660D5	/780*
IRHYB9A97130CM	-100	P	-23	76	TO-257AA Tabless Low Ohmic	JANS	2N7660D5	/780*
IRHYS9A93130CM	-100	P	-23	76	TO-257AA Low Ohmic	JANS	2N7660T3	/780*
IRHNKC9A93130	-100	P	-24	72	SMD-0.5e Ceramic Lid	JANS	2N7660U3CE	/780*
IRHNS9A97160	-100	P	55	18	SupIR-SMD	JANS	TBD*	TBD*
IRHMS9A97160	-100	P	45	19	TO-254AA low ohmic	JANS	TBD*	TBD*
IRHYS9A97230CM	-200	P	-14	175	TO-257AA low ohmic	JANS	2N7661T3	TBD*
IRHYB9A97230CM	-200	P	-14	175	TO-257AA Tabless Low Ohmic	JANS	2N7661D5	/780*
IRHYS9A93230CM	-200	P	-14	175	TO-257AA Low Ohmic	JANS	2N7661T3	/780*
IRHNS9A97260	-200	P	TBD*	TBD*	SupIR-SMD	JANS	TBD*	TBD*
IRHMS9A97260	-200	P	TBD*	TBD*	TO-254AA low ohmic	JANS	TBD*	TBD*
IRHNKC9A97230	-200	P	9	174	SMD-0.5e ceramic lid	JANS	2N7661U3CE	TBD*

*pending as of publication date

Rugged, reliable performance you can count on

IR HiRel's R9 MOSFET technology supports wide gate-source voltage variation (±20 V), making the portfolio far less sensitive to circuit parasitics than alternatives. Especially for high frequency applications, designers must balance between higher switching frequency, design and verification time to optimal board layout and reliability. R9-based rad hard MOSFETs are also highly ruggedized, designed to absorb avalanche energy for momentary drain-source voltage overshoot. Combined with superior SOA, transient thermal impedance and high ESD ratings, our R9-based MOSFET portfolio is a low risk path to improved reliability and performance.

Standard gate single MOSFETs (N-channel)

Single rad hard standard gate N-channel MOSFETs rated from 30 V to 600 V, 100 krad to 500 krad TID in a wide range of through hole and SMD package options screened to MIL-PRF-19500 and available as DLA QPLs.

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHF57Z30	2N7491T2	30	45	12	TO-205AF	R5	25	1C	Yes	/701
IRHE57Z30	2N7494U5	30	70	12	18-pin LCC	R5	25	1C	Yes	/700
IRHY57Z30CM	2N7482T3	30	30	18	TO-257AA	R5	75	1C	Yes	/702
IRHNJ57Z30	2N7479U3	30	20	22	SMD-0.5	R5	75	1C	Yes	/703
IRHMB57Z60		30	5	45	TO-254AA Tabless	R5	208	3B	No	N/A
IRHMS57Z60	2N7478T1	30	5	45	TO-254AA	R5	208	3B	Yes	/697
IRHM57Z60		30	10	35	TO-254AA	R5	250	3B	No	N/A
IRHM7Z60		30	14	35	TO-254AA	R4	250	0	No	N/A
IRHNA57Z60	2N7467U2	30	4	75	SMD-2	R5	250	3B	Yes	/683
IRHNS57Z60	2N7467U2A	30	4	75	SupIR-SMD	R5	250	3B	Yes	/683
IRHNA7Z60		30	9	75	SMD-2	R4	300	0	No	N/A
IRHF57034	2N7492T2	60	48	12	TO-205AF	R5	25	1C	Yes	/701
IRHE57034	2N7495U5	60	80	12	18-pin LCC	R5	25	1C	Yes	/700
IRHNMC9A7024	2N7650U8C	60	30	25	SMD-0.2C	R9	54	1C	Yes	/776
IRHY57034CM	2N7483T3	60	40	18	TO-257AA	R5	75	1C	Yes	/702
IRHNJ57034	2N7480U3	60	30	22	SMD-0.5	R5	75	1C	Yes	/703
IRHYS9A7034CM	2N7647T3	60	19	30	TO-257AA	R9	75	2	Yes	/775
IRHNJ9A7034	2N7647U3	60	18	40	SMD-0.5	R9	75	2	Yes	/775
IRHYB9A7034CM	2N7647D5	60	19	30	TO-257AA Tabless LO	R9	75	2	Yes	/775
IRHM7054	2N7394	60	27	35	TO-254AA	R4	150	3A	Yes	/603
IRHN7054	2N7394U	60	27	35	SMD-1	R4	150	3A	Yes	/603
IRHNJC9A7034	2N7647U3C	60	18	40	SMD-0.5	R9	75	2	Yes	/775
IRHMS9A7064	2N7652T1	60	7	45	TO-254AA	R9	208	3B	Yes	/777
IRHMB57064		60	6	45	TO-254AA Tabless	R5	208	3B	No	N/A
IRHMS57064	2N7470T1	60	6	45	TO-254AA	R5	208	3B	Yes	/698
IRHM57064		60	12	35	TO-254AA	R5	250	3B	No	N/A
IRHM7064	2N7431	60	21	35	TO-254AA	R4	250	3B	Yes	/663
IRHNA57064	2N7468U2	60	6	75	SMD-2	R5	250	3B	Yes	/673
IRHNS57064	2N7468U2A	60	6	75	SupIR-SMD	R5	250	3B	Yes	/673
IRHNS9A7064	2N7652U2A	60	4	100	SupIR-SMD	R9	250	3B	Yes	/777
IRHNA7064	2N7431U	60	15	75	SMD-2	R4	300	3B	Yes	/664
IRHE7110		100	600	3.5	18-pin LCC	R4	15	1A	No	N/A
IRHF7110		100	600	3.5	TO-205AF	R4	15	1A	No	N/A
IRHNM57110	2N7503U8	100	220	6.9	SMD-0.2	R5	23	1A	Yes	/743
IRHNMC57110	2N7503U8	100	220	6.9	SMD-0.2	R5	23	1A	Yes	/743
IRHE7130	2N7261U	100	180	8	18-pin LCC	R4	25	1C	Yes	/601
IRHF7130	2N7261	100	180	8	TO-205AF	R4	25	1C	Yes	/601
IRHF57130	2N7493T2	100	80	11.7	TO-205AF	R5	25	1C	Yes	/701
IRHF67130		100	65	12	TO-205AF	R6	44	2	No	N/A
IRHNM9A7120	2N7651U8	100	55	23	SMD-0.2	R9	54	1C	Yes	/776
IRHNMC9A7120	2N7651U8C	100	55	23	SMD-0.2C	R9	54	2	Yes	/776

LO = Low Ohmic

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHNMC9A7120	2N7651U8C	100	55	23	SMD-0.2C	R9	54	2	Yes	/776
IRHLNM7S7110	2N7609U8	100	29	6.5	SMD-0.2	R7	23.2	1B	No	N/A
IRHM7130		100	180	14	TO-254AA	R4	75	1C	No	N/A
IRHN7130		100	180	14	SMD-1	R4	75	1C	No	N/A
IRHNJ7130	2N7380U3	100	180	14.4	SMD-0.5	R4	75	1C	No	N/A
IRHY7130CM	2N7380	100	180	14.4	TO-257AA	R4	75	1C	Yes	/614
IRHY57130CM	2N7484T3	100	85	18	TO-257AA	R5	75	1C	Yes	/702
IRHYB67130CM		100	42	20	TO-257AA Tabless	R6	75	2	No	N/A
IRHYS67130CM	2N7588T3	100	42	20	TO-257AA	R6	75	2	Yes	/755
IRHNJ67130	2N7587U3	100	42	22	SMD-0.5	R6	75	2	Yes	/746
IRHNJ57130	2N7481U3	100	75	22	SMD-0.5	R5	75	1C	Yes	/703
IRHYB9A7130CM	2N7648D5	100	35	30	TO-257AA Tabless	R9	75	2	Yes	/775
IRHYS9A7130CM	2N7648T3	100	35	30	TO-257AA	R9	75	2	Yes	/775
IRHNJ9A7130	2N7648U3	100	34	35	SMD-0.5	R9	75	2	Yes	/775
IRHNJC9A7130	2N7648U3C	100	34	35	SMD-0.5e	R9	75	2	Yes	/775
IRHNKC9A7130	2N7648U3CE	100	34	35	SMD-0.5e	R9	75	2	Yes	/775
IRHMB6S7160		100	11	45	TO-254AA	R6	208	3A	No	N/A
IRHM7150	2N7268	100	65	34	TO-254AA	R4	150	3A	Yes	/603
IRHN7150	2N7268U	100	65	34	SMD-1	R4	150	3A	Yes	/603
IRHMS9A7160	2N7653T1	100	10	45	TO-254AA	R9	208	2	No	N/A
IRHMS67160	2N7580T1	100	11	45	TO-254AA	R6	208	3A	Yes	/753
IRHMK57160		100	13	45	TO-254AA Tabless SMD	R5	208	3B	No	N/A
IRHMS57160	2N7471T1	100	13	45	TO-254AA	R5	208	3B	Yes	/698
IRHM57160		100	18	35	TO-254AA	R5	250	3B	No	N/A
IRHMJ57160		100	18	35	TO-254AA Tabless SMD	R5	250	3B	No	N/A
IRHNA6S7160		100	10	56	SMD-2	R6	250	3A	No	N/A
IRHNA67160	2N7579U2	100	10	56	SMD-2	R6	250	3A	Yes	/760
IRHNS67160	2N7579U2A	100	10	56	SupIR-SMD	R6	250	2	Yes	/760
IRHNA57160	2N7469U2	100	12	75	SMD-2	R5	250	3B	Yes	/673
IRHNS57160	2N7469U2A	100	12	75	SupIR-SMD	R5	250	3B	Yes	/673
IRHNS9A7160	2N7653U2A	100	7	100	SupIR-SMD	R9	250	3B	Yes	/777
IRHMS6S7160		100	11	45	TO-254AA LO	R6	208	3A	No	N/A
IRHNJ6S7130		100	42	22	SMD-0.5	R6	75	2	No	N/A
IRHYS6S7130CM		100	42	20	TO-257AA LO	R6	75	2	No	N/A
IRHE57133SE	2N7500U5	130	100	9	18-pin LCC	R5	25	1C	Yes	/707
IRHF57133SE	2N7497T2	130	100	10.5	TO-205AF	R5	25	1C	Yes	/706
IRHY57133CMSE	2N7488T3	130	90	18	TO-257AA	R5	75	1C	Yes	/705
IRHNJ57133SE	2N7485U3	130	80	20	SMD-0.5	R5	75	1C	Yes	/704
IRHYK57133CMSE		130	82	20	TO-257AA	R5	75	1C	No	N/A
IRHMS57163SE	2N7475T1	130	15	45	TO-254AA	R5	208	3B	Yes	/685
IRHNA57163SE	2N7472U2	130	14	75	SMD-2	R5	250	3B	Yes	/684
IRHNS57163SE	2N7472U2A	130	14	75	SupIR-SMD	R5	250	1C	Yes	/684
IRHNJ67134	2N7589U3	150	88	19	SMD-0.5	R6	75	2	Yes	/746
IRHYB67134CM		150	90	19	TO-257AA Tabless	R6	75	2	No	N/A
IRHYS67134CM		150	90	19	TO-257AA	R6	75	2	No	N/A
IRHMS67164	2N7582T1	150	19	45	TO-254AA	R6	208	3A	Yes	/753

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	ID @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHNS67164	2N7581U2A	150	18	56	SupIR-SMD	R6	250	3A	Yes	/760
IRHE7230	2N7262U	200	350	5.5	18-pin LCC	R4	25	1C	Yes	/601
IRHF7230	2N7262	200	350	5.5	TO-205AF	R4	25	1C	Yes	/601
IRHMB67260	2N7584D4	200	29	45	TO-254AA Tabless LO	R6	208	3A	Yes	/753
IRHF57230		200	220	7.3	TO-205AF	R5	25	1A	No	N/A
IRHE67230		200	175	8	18-pin LCC	R6	25	2	No	N/A
IRHF67230		200	145	9.1	TO-205AF	R6	25	2	No	N/A
IRHMB6S7260		200	29	45	TO-254AA Tabless LO	R6	208	3A	No	N/A
IRHM7230		200	400	9	TO-254AA	R4	75	1C	No	N/A
IRHN7230		200	400	9	SMD-1	R4	75	1C	No	N/A
IRHNJ7230		200	400	9.4	SMD-0.5	R4	75	1C	No	N/A
IRHY7230CM	2N7381	200	400	9.4	TO-257AA	R4	75	1C	Yes	/615
IRHNJ57230SE	2N7486U3	200	220	12	SMD-0.5	R5	75	1A	Yes	/704
IRHY57230CMSE	2N7489T3	200	230	12	TO-257AA	R5	75	1A	Yes	/705
IRHNJ67230	2N7591U3	200	130	16	SMD-0.5	R6	75	2	Yes	/746
IRHYB67230CM		200	130	16	TO-257AA Tabless	R6	75	2	No	N/A
IRHYS67230CM	2N7592T3	200	130	16	TO-257AA	R6	75	2	Yes	/755
IRHMS6S7260		200	29	45	TO-254AA LO	R6	208	3A	No	N/A
IRHM7250	2N7269	200	100	26	TO-254AA	R4	150	3A	Yes	/603
IRHMJ7250		200	100	26	TO-254AA Tabless SMD	R4	150	3A	No	N/A
IRHN7250	2N7269U	200	100	26	SMD-1	R4	150	3A	Yes	/603
IRHN7250SE		200	100	26	SMD-1	R4	150	3A	No	N/A
IRHNA6S7260		200	28	56	SMD-2	R6	250	3A	No	N/A
IRHN57250SE		200	60	31	SMD-1	R5	150	3A	No	N/A
IRHMJ57260SE		200	49	35	TO-254AA Tabless SMD	R5	208	3B	No	N/A
IRHMS67260	2N7584T1	200	29	45	TO-254AA	R6	208	3A	Yes	/753
IRHMB57260SE		200	44	45	TO-254AA Tabless	R5	208	3B	No	N/A
IRHMK57260SE		200	44	45	TO-254AA Tabless SMD	R5	208	3B	No	N/A
IRHMS57260SE	2N7476T1	200	44	45	TO-254AA	R5	208	3B	Yes	/685
IRHF6S7230		200	145	9.1	TO-205AF	R6	25	2	No	N/A
IRHM57260SE		200	44	35	TO-254AA	R5	250	3B	No	N/A
IRHM7260	2N7433	200	70	35	TO-254AA	R4	250	3B	Yes	/663
IRHM7260SE		200	70	35	TO-254AA	R4	250	3B	No	N/A
IRHMB7260	2N7433D4	200	77	35	TO-254AA Tabless	R4	250	3B	No	N/A
IRHNS57260SE	2N7473U2A	200	38	53.5	SupIR-SMD	R5	250	3B	Yes	/684
IRHNA57260SE	2N7473U2	200	38	53.5	SMD-2	R5	250	3B	Yes	/684
IRHNA67260	2N7583U2	200	28	56	SMD-2	R6	250	3A	Yes	/760
IRHNS67260	2N7583U2A	200	28	56	SupIR-SMD	R6	250	3A	Yes	/760
IRHNA7260	2N7433U	200	70	43	SMD-2	R4	300	3B	Yes	/664
IRHNJ6S7230		200	130	16	SMD-0.5	R6	75	2	No	N/A
IRHYS6S7230CM		200	130	16	TO-257AA LO	R6	75	2	No	N/A
IRHNA7260SE		200	70	43	SMD-2	R5	300	3B	No	N/A

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	ID @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHF57214SE		250	1550	2.2	TO-205AF	R5	15	1B	No	N/A
IRHF57234SE	2N7561T2	250	420	5.4	TO-205AF	R5	25	1C	Yes	/706
IRHNM57214SE		250	1700	3.7	SMD-0.2	R5	40	1B	No	N/A
IRHF67234		250	250	9.5	TO-205AF	R6	44	3A	No	N/A
IRHNJ57234SE	2N7555U3	250	400	10	SMD-0.5	R5	75	1C	Yes	/704
IRHY57234CMSE	2N7556T3	250	410	10	TO-257AA	R5	75	1C	Yes	/705
IRHYS67234CM	2N7594T3	250	220	12	TO-257AA	R6	75	2	Yes	/755
IRHNJ67234	2N7593U3	250	210	12.4	SMD-0.5	R6	75	2	Yes	/746
IRHYS9A7234CM	2N7649T3	250	110	17	TO-257AA	R9	75	2	Yes	/775
IRHNJ9A7234	2N7649U3	250	110	17	SMD-0.5	R9	75	2	Yes	/775
IRHLNM7S7214	2N7611U8	250	110	3.2	SMD-0.2	R7	23.2	1B	No	N/A
IRHMS57264SE	2N7477T1	250	61	37	TO-254AA	R5	208	3A	Yes	/685
IRHMS67264	2N7586T1	250	41	45	TO-254AA	R6	208	3A	Yes	/753
IRHMS6S7264		250	41	45	TO-254AA LO	R6	208	3A	No	N/A
IRHM57264SE		250	66	35	TO-254AA	R5	250	3A	No	N/A
IRHNA57264SE	2N7474U2	250	60	49	SMD-2	R5	250	3A	Yes	/684
IRHNA67264	2N7585U2	250	40	50	SMD-2	R6	250	3A	Yes	/760
IRHNS67264	2N7585U2A	250	40	50	SupIR-SMD	R6	250	3A	Yes	/760
IRHNA7264SE		250	110	34	SMD-2	R4	300	3B	No	N/A
IRHNA6S7264		250	40	50	SMD-2	R6	250	3A	No	N?A
IRHNJ6S7234		250	210	12.4	SMD-0.5	R6	75	2	No	N/A
IRHYS6S7234CM		250	220	12	TO-257AA LO	R6	75	2	No	N/A
IRHF7330SE	2N7463T2	400	1200	3	TO-205AF	R4	25	1C	Yes	/675
IRHNJ7330SE	2N7465U3	400	1200	5.3	SMD-0.5	R4	75	1C	Yes	/676
IRHMB7360SE	2N7391D4	400	200	22	TO-254AA Tabless	R4	250	3B	No	N/A
IRHM7360		400	220	22	TO-254AA	R4	250	3B	No	N/A
IRHNA7360SE		400	200	24	SMD-2	R4	300	3B	No	N/A
IRHF7430SE	2N7464T2	500	1650	2.6	TO-205AF	R4	25	1C	Yes	/675
IRHNJ7430SE	2N7466U3	500	1600	4.5	SMD-0.5	R4	75	1C	Yes	/676
IRHM7450	2N7270	500	450	11	TO-254AA	R4	150	3A	Yes	/603
IRHN7450	2N7270U	500	450	11	SMD-1	R4	150	3A	Yes	/603
IRHM7450SE		500	510	12	TO-254AA	R4	151	3A	No	N/A
IRHN7450SE		500	510	12	SMD-1	R4	151	3A	No	N/A
IRHM7460SE	2N7392	500	320	18	TO-254AA	R4	250	3B	Yes	/661
IRHNS7460SE	2N7392U2A	500	320	20	SupIR-SMD	R4	300	3B	Yes*	/661
IRHI7460SE		500	320	20	TO-259AA	R4	300	3B	No	N/A
IRHNA7460SE		500	320	20	SMD-2	R4	300	3B	No	N/A
IRHNJ67C30	2N7598U3	600	2900	3.4	SMD-0.5	R6	75	2	Yes	/746
IRHY67C30CM	2N7599T3	600	3000	3.4	TO-257AA	R6	75	2	No	N/A

*pending as of publication date

Bare Die

All listed MOSFETs, excluding synchronous rectifiers and PowerMOS transistors, are available in bare die form with visual inspection and ready for hybrid assembly. Die part numbers begin with the "IRHC" prefix and associated numbering. For example, IRHC9A7034 is the die in the IRHYS9A7034CMSCS packaged product. Die are also available with Class H or Class K element evaluation.

Standard gate single MOSFETs (P-channel)

Single rad hard standard gate P-channel MOSFETs rated from -30 V to -200 V, 100 krad to 600 krad TID in a variety of packages screened to MIL-PRF-19500 and available as DLA QPLs.

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHNA597Z60	2N7523U2	-30	13	-56	SMD-2	R5	250	3A	Yes	/733
IRHNS597Z60	2N7523U2A	-30	13	-56	SupIR-SMD	R5	250	3A	Yes	/733
IRHMS597Z60	2N7523T1	-30	13	-45	TO-254AA	R5	208	3A	Yes	/733
IRHNJ597Z30	2N7519U3	-30	70	-22	SMD-0.5	R5	75	1C	Yes	/732
IRHYB597Z30CM		-30	48	-20	TO-257AA Tabless	R5	75	1C	No	N/A
IRHYS597Z30CM	2N7519T3	-30	72	-20	TO-257AA	R5	75	1C	Yes	/732
IRHNA597064	2N7524U2	-60	15	-56	SMD-2	R5	250	3A	Yes	/733
IRHNS597064	2N7524U2A	-60	16	-56	SupIR-SMD	R5	250	3A	Yes	/733
IRHNA9064	2N7424U	-60	45	-48	SMD-2	R4	300	3A	Yes	/655
IRHMB597064	2N7524D4	-60	18	-45	TO-254AA tabless	R5	208	3A	Yes	/733
IRHMS597064	2N7524T1	-60	16	-45	TO-254AA	R5	208	3A	Yes	/733
IRHM9064	2N7424	-60	50	-35	TO-254AA	R4	250	3A	Yes	/660
IRHYB9A97034CM	2N7659D5	-60	46	-30	TO-257AA Tabless LO	R9	75	2	Yes	/780
IRHYS9A97034CM	2N7659T3	-60	46	-30	TO-257AA Tabless LO	R9	75	2	Yes	/780
IRHNJ597034	2N7520U3	-60	85	-22	SMD-0.5	R5	75	1C	Yes	/732
IRHYB597034CM		-60	87	-20	TO-257AA Tabless	R5	75	1C	No	N/A
IRHYS597034CM	2N7520T3	-60	87	-20	TO-257AA	R5	75	1C	No	N/A
IRHY597034CM		-60	95	-18	TO-257AA	R5	75	1C	No	N/A
IRHNA597160	2N7550U2	-100	49	-52	SMD-2	R5	250	3A	Yes	/713
IRHNS597160	2N7550U2A	-100	49	-47	SupIR-SMD	R5	250	1B	Yes	/713
IRHNA5S97160		-100	49	-47	SMD-2	R5	250	3A	No	N/A
IRHML597160	2N7550D1	-100	50	-45	TO-254AA Tabless SMD	R5	208	3A	Yes	/713
IRHMS597160	2N7550T1	-100	49	-45	TO-254AA	R5	208	3A	Yes	/713
IRHMK597160		-100	50	-45	TO-254AA Tabless SMD	R5	208	3A	No	N/A
IRHNA9160	2N7425U	-100	68	-38	SMD-2	R4	300	3A	Yes	/655
IRHM9160	2N7425	-100	73	-35	TO-254AA	R4	250	3A	Yes	/660
IRH9150		-100	75	-22	TO-204AE	R4	150	2	No	N/A
IRHM9150	2N7422	-100	80	-22	TO-254AA	R4	150	2	Yes	/662
IRHN9150	2N7422U	-100	80	-22	SMD-1	R4	150	2	Yes	/662
IRHNJ597130	2N7545U3	-100	205	-12.5	SMD-0.5	R5	75	1B	Yes	/712
IRHY597130CM	2N7547T3	-100	215	-12.5	TO-257AA	R5	75	1B	Yes	/712
IRH9130		-100	300	-11	TO-204AA	R4	75	1B	No	N/A
IRHM9130		-100	300	-11	TO-254AA	R4	75	1B	No	N/A
IRHN9130		-100	300	-11	SMD-1	R4	75	1B	No	N/A
IRHNJ9130		-100	290	-11	SMD-0.5	R4	75	1B	No	N/A
IRHY9130CM	2N7382	-100	300	-11	TO-257AA	R4	75	1B	Yes	/615
IRHF597130		-100	240	-6.7	TO-205AF	R5	25	1B	No	N/A
IRHE9130	2N7389U	-100	300	-6.5	18-pin LCC	R4	25	1B	Yes	/630

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	ID @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHF9130	2N7389	-100	300	-6.5	TO-205AF	R4	25	1B	Yes	/630
IRHNM597110	2N7506U8	-100	1200	-3.1	SMD-0.2	R5	23	1A	Yes	/749
IRHF597110		-100	1000	-2.6	TO-205AF	R5	15	1A	No	N/A
IRHE9110		-100	1100	-2.3	18-pin LCC	R4	15	1A	No	N/A
IRHF597230	2N7546U3	-200	540	-4.5	TO-205AF	R5	25	1C	Yes	/712
IRHE9230	2N7390U	-200	800	-4	18-pin LCC	R4	25	1B	Yes	/630
IRHF9230	2N7390	-200	800	-4	TO-205AF	R4	25	1B	Yes	/630
IRHNJ597230	2N7546U3	-200	505	-8	SMD-0.5	R5	75	1C	Yes	/712
IRHNA5S97260		-200	102	-33.5	SMD-2	R5	250	3A	No	N/A
IRHY597230CM	2N7548T3	-200	550	-8	TO-257AA	R5	75	1C	Yes	/712
IRHM9230		-200	800	-6.5	TO-254AA	R4	75	1B	No	N/A
IRHNJ9230		-200	800	-6.5	SMD-0.5	R4	75	1B	No	N/A
IRHY9230CM	2N7383	-200	800	-6.5	TO-257AA	R4	75	1B	Yes	/615
IRH9230		-200	800	-6	TO-204AA	R4	75	1B	No	N/A
IRH9250		-200	315	-14	TO-204AE	R4	150	2	No	N/A
IRHM9250	2N7423	-200	315	-14	TO-254AA	R4	150	2	Yes	/662
IRHN9250	2N7423U	-200	315	-14	SMD-1	R4	150	2	Yes	/662
IRHMS597260	2N7549T1	-200	103	-32	TO-254AA	R5	208	3A	Yes	/713
IRHNA597260	2N7549U2	-200	102	-35.5	SMD-2	R5	250	3A	No	N/A
IRHNS597260	2N7549U2A	-200	102	-33.5	SupIR-SMD	R5	250	1C	Yes	/713
IRHM9260	2N7426	-200	160	-27	TO-254AA	R4	250	3A	Yes	/660
IRHNA9260	2N7426U	-200	154	-29	SMD-2	R4	300	3A	Yes	/665

Logic level gate single MOSFETs (N-channel)

Single rad hard logic level gate N-channel MOSFETs rated from 20 V to 250 V, 100 krad to 300 krad TID with DLA QPLs available and QIRL options with S-level equivalent screenings to MIL-PRF-19500.

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	ID @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHLNS87Y50		20	2.5	75	SupIR-SMD	R8	125	2	No	N/A
IRHLF87Y20		20	32	12	TO-205AF	R8	15.6	1B	No	N/A
IRHLNM87Y20		20	15	17	SMD-0.2	R8	36	1B	No	N/A
IRHLUB770Z4	2N7616UB	60	680	0.8	UB	R7	0.6	0	Yes	/744
IRHLUBC770Z4	2N7616UBC	60	680	0.8	UBC	R7	0.6	0	Yes	/744
IRHLF770Z4	2N7621T2	60	500	1.6	TO-205AF	R7	5	0	No	N/A
IRHLNJ77034	2N7606U3	60	35	22	SMD-0.5	R7	57	1B	No	N/A
IRHLYS77034CM	2N7607T3	60	45	20	TO-257AA	R7	75	1B	No	N/A
IRHLMS77064		60	12	45	TO-254AA	R7	208	3B	No	N/A
IRHLNA77064		60	12	56	SMD-2	R7	250	3B	No	N/A
IRHLF77110	2N7068T2	100	320	6	TO-205AF	R7	23	1B	Yes	/752
IRHLNM77110		100	290	6.5	SMD-0.2	R7	23	1B	No	N/A
IRHLF7S7214	2N7610T2	250	1000	3.3	TO-205AF	R7	22.7	1B	No	N/A

Logic level gate single MOSFETs (P-channel)

Single rad hard logic level gate P-channel MOSFETs rated at -60 V, 100 krad to 300 krad TID with DLA QPLs available and QIRL options with S-level equivalent screenings to MIL-PRF-19500.

Part number	JEDEC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Package	Family	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHLUB7970Z4	2N7626UB	-60	1300	-0.53	UB	R7	0.6	0	Yes	/745
IRHLUBC7970Z4	2N7626UBC	-60	1300	-0.53	UBC	R7	0.6	0	Yes	/745
IRHLUBN7970Z4	2N7626UB	-60	1300	-0.53	UB	R7	0.57	0B	Yes	/745
IRHLF7970Z4	2N7631T2	-60	1200	-1.6	TO-205AF	R7	5	0	Yes	N/A
IRHLNJ797034	2N7624U3	-60	72	-22	SMD-0.5	R7	57	2	Yes	/757
IRHLYS797034CM	2N7625T3	-60	72	-20	TO-257AA	R7	75	2	Yes	/757
IRHLMS797064		-60	18	-45	TO-254AA	R7	208	3B	No	N/A
IRHLNA797064	2N7622U2	-60	15	-56	SMD-2	R7	250	3B	No	N/A

Synchronous rectifier single MOSFETs

High reliability synchronous rectifier single MOSFETs rated from 30 V to 60 V.

Part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Package	Family	Power dissipation (W)	ESD class
IRHSLNA57Z60	30	6.1	75	SMD-2	R5	250	3B
IRHSNA57Z60	30	3.5	75	SMD-2	R5	250	3B
IRHSLNA57064	60	4.0	75	SMD-2	R5	250	3B

Dual MOSFETs (N- & P-channel)

Dual rad hard logic gate N- and P-channel MOSFETs rated from -60 V to 60 V.

Part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Gate	Channel	Package	Power dissipation (W)	ESD class
IRHLUC770Z4	60	750	0.89	Logic	2N	LCC-6	1	0
IRHLUC7970Z4	-60	1600	-0.65	Logic	2P	LCC-6	1	0
IRHLUC7670Z4	±60	1350 / 750	0.89 / -0.65	Logic	1N / 1P	LCC-6	1	0

Quad MOSFETs (N- & P-channel)

Quad rad hard standard gate and logic gate N- and P-channel MOSFETs rated from -100 V to 250 V.

Part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	ID @25°C (A)	Gate	Channel	Package	Power dissipation (W)	ESD class
IRHG7110	100	600	1	Standard	4N	MO-036AB	1.4	1A
IRHG57110	100	290	1.6	Standard	4N	MO-036AB	1.4	1A
IRHLG77110	100	220	1.8	Logic	4N	MO-036AB	1.4	1A
IRHLG7S7110	100	330	1.8	Logic	4N	MO-036AB	1.4	1B
IRHQ7110	100	600	3	Standard	4N	28-pin LCC	12	1A
IRHQ57110	100	270	4.6	Standard	4N	28-pin LCC	12	1A
IRHLG77214	250	1100	0.8	Logic	4N	MO-036AB	1.4	1B
IRHLG7S7214	250	1100	0.8	Logic	4N	MO-036AB	1.4	1B
IRHQ57214SE	250	1500	1.9	Standard	4N	28-pin LCC	12	1B
IRHLQ77214	250	1000	2.6	Logic	4N	28-pin LCC	12	
IRHLQ7S7214	250	1000	2.6	Logic	4N	28-pin LCC	12	1B

Quad MOSFETs (N- & P-channel) continued

Part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Gate	Channel	Package	Power dissipation (W)	ESD class
IRHQ9110	-100	1100	-2.3	Standard	4P	28-pin LCC	12	
IRHG9110	-100	1100	-0.75	Standard	4P	MO-036AB	1.4	
IRHG597110	-100	960	-0.96	Standard	4P	MO-036AB	1.4	1A
IRHQ597110	-100	1200	-2.8	Standard	4P	28-pin LCC	12	1A
IRHG6110	±100	1400 / 700	1 / -0.75	Standard	2N / 2P	MO-036AB	1.4	
IRHQ6110	±100	880 / 380	3 / -2.2	Standard	2N / 2P	28-pin LCC	12	
IRHQ567110	±100	960 / 270	4.6 / -2.8	Standard	2N / 2P	28-pin LCC	12	1A
IRHG567110	±100	960 / 290	0.29 / -0.96	Standard	2N / 2P	MO-036AB	1.4	1A

Gate driver ICs

High- and low-side drivers

Rad hard high voltage, high speed power MOSFET and IGBT drivers rated at 100 krad TID with available gate drive supply range up to 20 V.

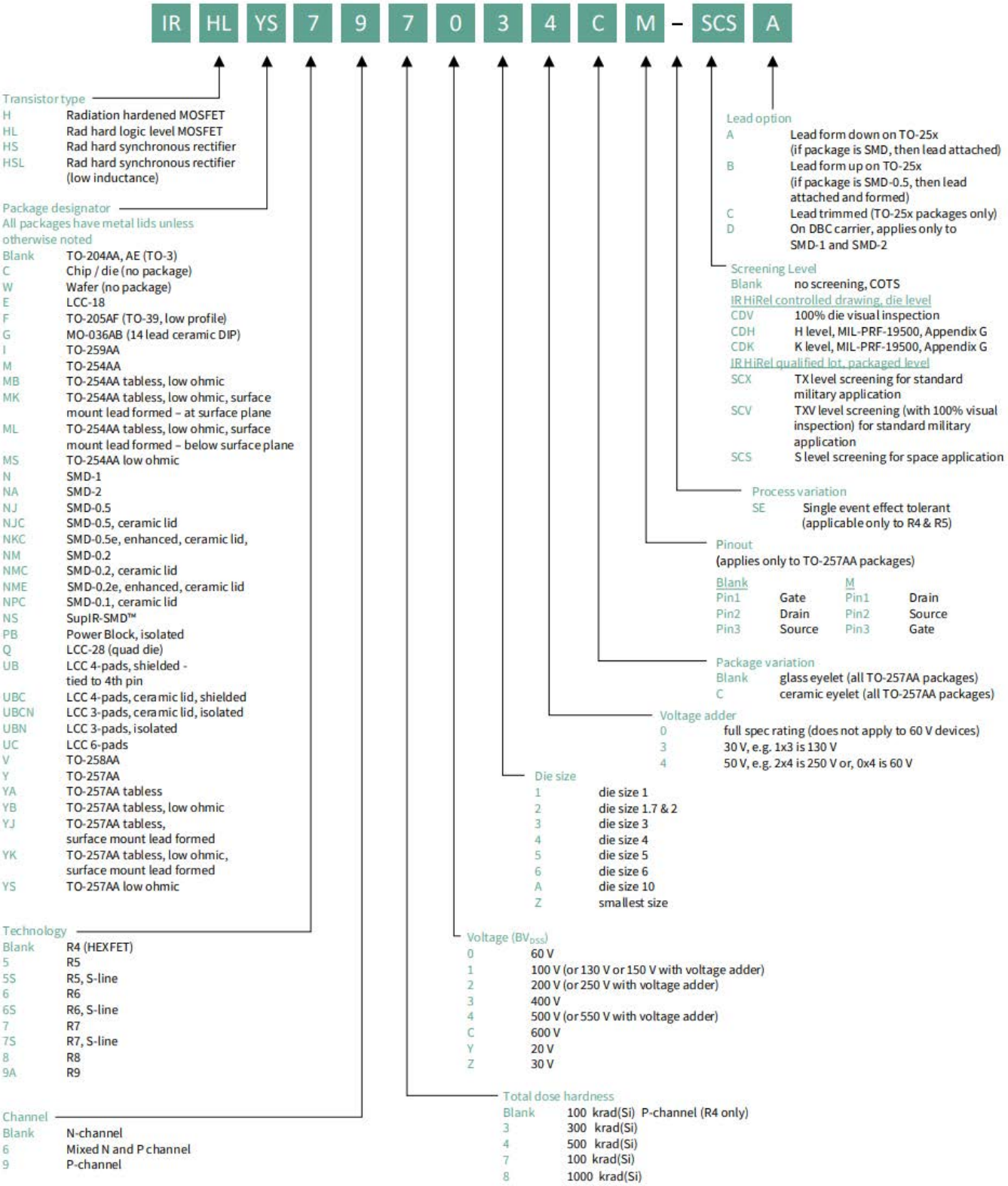
Part number	Package	Offset voltage (V)	Max supply range (V)	I_{OUT} source/ sink (A)	Delay matching max (ns)	Propagation delay typ (ns)	ESD class
RIC7S113A4	14-lead FlatPack	400	20	+/-2	20	120/100	1C
RIC7S113E4	18-pin LCC	400	20	+/-2	20	120/100	1C
RIC7113L4	MO-036AB	400	20	+/-2	20	120/100	1C

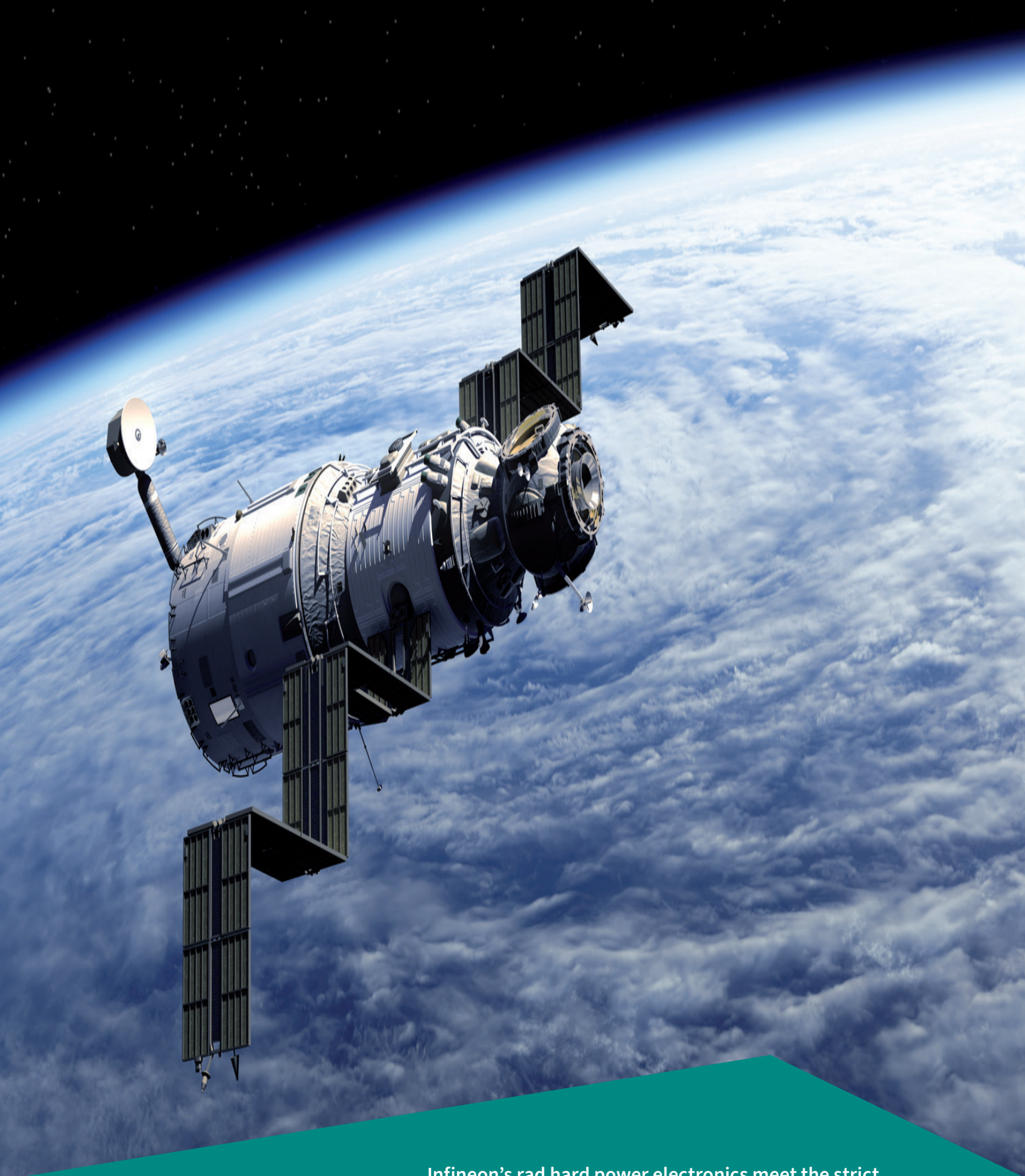
Low-side driver

Rad hard high speed, dual channel low-side gate driver specifically designed for high performance in demanding space environments.

Part number	Package	Max supply range (V)	I_{OUT} source/sink (A)	VS quiescent current @25°C (µA)	Propagation delay typ (ns)	ESD class
RIC74424H	8-lead FlatPack	20	+/-3	400	110/90	3B

Rad hard MOSFET nomenclature





Infineon’s rad hard power electronics meet the strict requirements of space and other harsh environments.

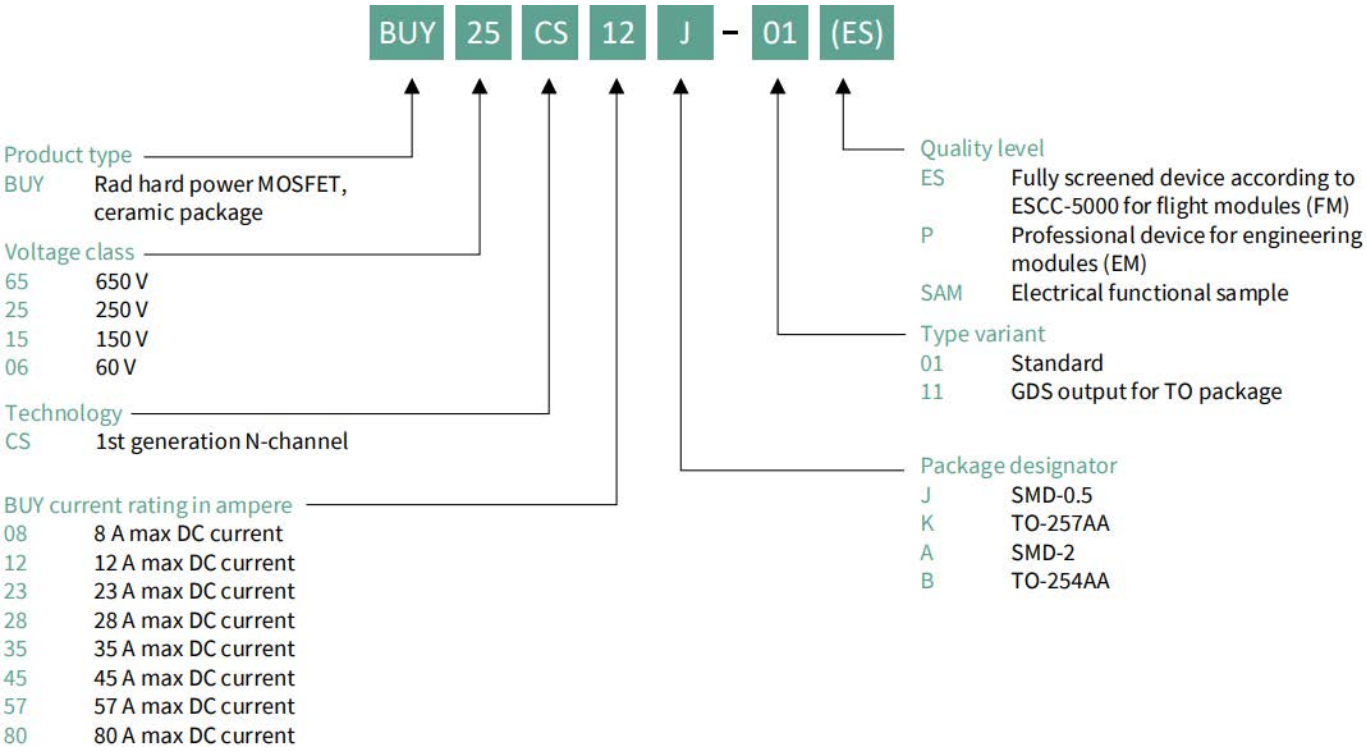
Standard gate single PowerMOS transistors (N-channel)

Single rad hard standard gate N-channel MOSFETs based on Infineon's unique CoolMOS™ technology, rated from 60 V to 650 V, 100 krad TID (300 krad TID on request) in through hole and SMD package options screened to ESCC-5000 and available as ESA QPLs. These MOSFETs are also available as qualified bare die.

Part number	ESCC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Package	Q_G (nC)	I_{dpuls} (A)	Power dissipation (W)	Gate voltage	ESD class	ESA qualified
BUY06CS23K-01(ES)	5205 032 03	60	36	23	TO-257AA	26	100	75	+/- 20	2	Yes
BUY06CS23K-01(P)		60	36	23	TO-257AA	26	100	75	+/- 20	2	No
BUY06CS35J-01(ES)	5205 032 01	60	28	35	SMD-05	25	100	75	+/- 20	2	Yes
BUY06CS35J-01(P)		60	28	35	SMD-05	25	100	75	+/- 20	2	No
BUY06CS45B-01(ES)	5205 032 04	60	14	45	TO-254AA	75	200	208	+/- 20	2	Yes
BUY06CS45B-01(P)		60	14	45	TO-254AA	75	200	208	+/- 20	2	No
BUY06CS80A-01(ES)	5205 032 02	60	5.6	80	SMD-2	175	300	250	+/- 20	2	Yes
BUY06CS80A-01(P)		60	5.6	80	SMD-2	175	300	250	+/- 20	2	No
BUY15CS23J-01(ES)	5205 031 01	150	55	23	SMD-05	25	93	75	+/- 20	1C	Yes
BUY15CS23J-01(P)		150	55	23	SMD-05	25	93	75	+/- 20	1C	No
BUY15CS23K-01(ES)	5205 031 03	150	55	23	TO-257AA	25	93	75	+/- 20	1C	Yes
BUY15CS23K-01(P)		150	55	23	TO-257AA	25	93	75	+/- 20	1C	No
BUY15CS45B-01(ES)	5205 031 04	150	23	45	TO-254AA	75	180	208	+/- 20	1C	Yes
BUY15CS45B-01(P)		150	23	45	TO-254AA	75	180	208	+/- 20	1C	No
BUY15CS57A-01(ES)	5205 031 02	150	9	57	SMD-2	160	224	250	+/- 20	1C	Yes
BUY15CS57A-01(P)		150	9	57	SMD-2	160	224	250	+/- 20	1C	No
BUY25CS12J-01 (ES)	5205 026	250	100	12.4	SMD-05	42	50	75	+/- 20	1C	Yes
BUY25CS12J-01 (P)		250	100	12.4	SMD-05	42	50	75	+/- 20	1C	No
BUY25CS12K-01 (ES)	5205 030 01	250	120	12.4	TO-257AA	42	50	75	+/- 20	1C	Yes
BUY25CS12K-01 (P)		250	120	12.4	TO-257AA	42	50	75	+/- 20	1C	No
BUY25CS12K-11 (ES)	5205 030 02	250	120	12.4	TO-257AA	42	50	75	+/- 20	1C	Yes
BUY25CS12K-11 (P)		250	120	12.4	TO-257AA	42	50	75	+/- 20	1C	No
BUY25CS45B-01 (ES)	5205 030 03	250	45	45	TO-254AA	100	180	208	+/- 20	1C	Yes
BUY25CS45B-01 (P)		250	45	45	TO-254AA	100	180	208	+/- 20	1C	No
BUY25CS54A-01 (ES)	5205 027	250	25	54	SMD-2	180	214	250	+/- 20	1C	Yes
BUY25CS54A-01 (P)		250	25	54	SMD-2	180	214	250	+/- 20	1C	No
BUY65CS08J-01(ES)	5205 033 01	650	370	8	SMD-05	23	24	75	+/- 20	1C	Yes
BUY65CS08J-01(P)		650	370	8	SMD-05	23	24	75	+/- 20	1C	No
BUY65CS28A-01(ES)	5205 033 02	650	116	28	SMD-2	67	80	215	+/- 20	1C	Yes
BUY65CS28A-01(P)		650	116	28	SMD-2	67	80	215	+/- 20	1C	No
CHIP L5441A(ES)		60	5.6	80	Chip of BUY06CS80A	175	300		+/- 20	2	No
CHIP L5441A(P)		60	5.6	80	Chip of BUY06CS80A	175	300		+/- 20	2	No
CHIP L5442A(ES)		60	28	35	Chip of BUY06CS35J	25	100		+/- 20	2	No
CHIP L5442A(P)		60	28	35	Chip of BUY06CS35J	25	100		+/- 20	2	No
CHIP L5461A(ES)		150	9	57	Chip of BUY15CS57A	160	224		+/- 20	1C	No
CHIP L5461A(P)		150	9	57	Chip of BUY15CS57A	160	224		+/- 20	1C	No
CHIP L5462A(ES)		150	55	23	Chip of BUY15CS23A	25	93		+/- 20	1C	No

Part number	ESCC part number	BV_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Package	Q_G (nC)	I_{dpuls} (A)	Power dissipation (W)	Gate voltage	ESD class	ESA qualified
CHIP L5462A(P)		150	55	23	Chip of BUY15CS23A	25	93		+/- 20	1C	No
CHIP L5490 (ES)		250	110	12.4	Chip of BUY25CS12J	25	50		+/- 20	1C	No
CHIP L5490 (P)		250	110	12.4	Chip of BUY25CS12J	25	50		+/- 20	1C	No
CHIP L5491A(ES)		250	25	54	Chip of BUY25CS54A	150	214		+/- 20	1C	No
CHIP L5491A(P)		250	25	54	Chip of BUY25CS54A	150	214		+/- 20	1C	No
CHIP L5452B(ES)		650	370	8	Chip of BUY65CS08J	23	24		+/- 20	1C	No
CHIP L5452B(P)		650	370	8	Chip of BUY65CS08J	23	24		+/- 20	1C	No
CHIP L5454A(ES)		650	116	28	Chip of BUY65CS28A	67	80		+/- 20	1C	No
CHIP L5454A(P)		650	116	28	Chip of BUY65CS28A	67	80		+/- 20	1C	No

Rad hard PowerMOS transistor nomenclature



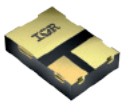
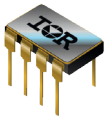
ESD class voltage ranges

ESD class	Voltage (V)
0	<250
1A	250-499
1B	500-999
1C	1,000-1,999

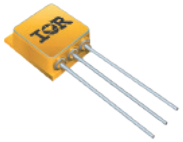
ESD class	Voltage (V)
2	2,000-3,999
3A	4,000-7,999
3B	8,000-15,999
Nonsensitive	16,000+

Package overview

Surface mount

SMD-0.1	SMD-0.2	SMD-0.5	SMD-0.5e	SMD-1	SMD-2
					
SupIR-SMD	MO-036AA	MO-036AB	UB	UBC	LCC-6
					
LCC-18	LCC-28				
					

Through hole

TO-205AF	TO-254	Tabless TO-254	TO-257	Tabless TO-257
				

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