

Rad hard MOSFETs & ICs product selector

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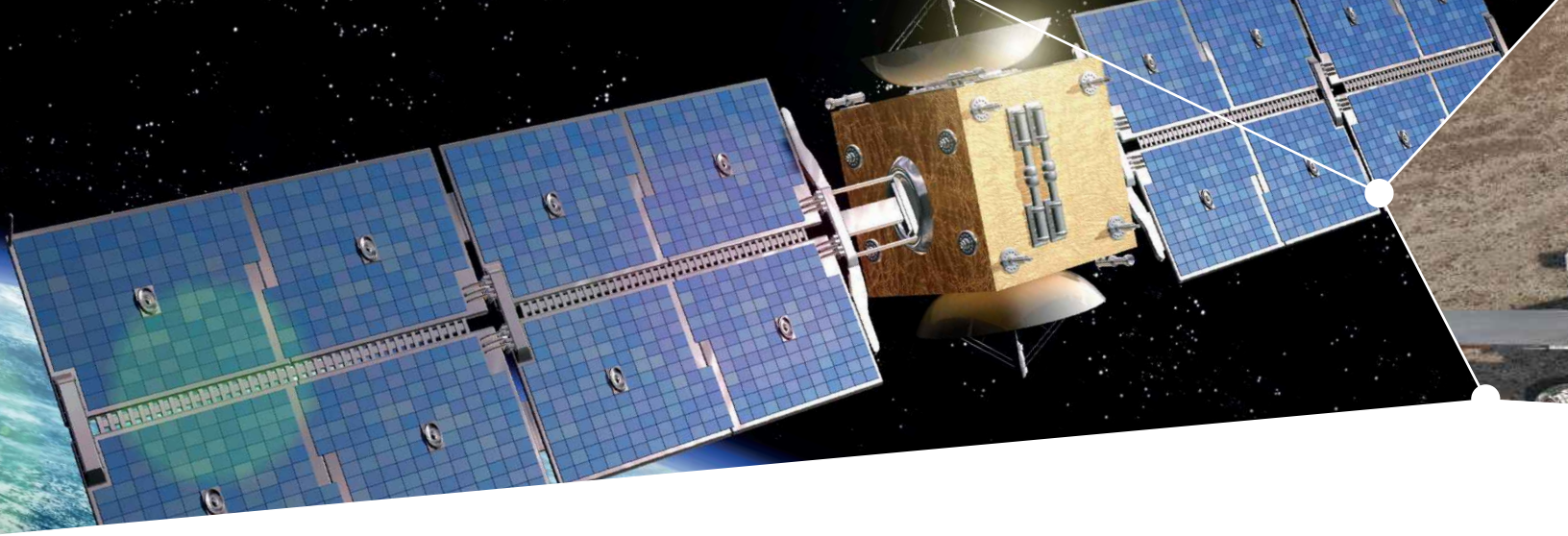
IOR HiRel
An Infineon Technologies Company



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.

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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 ruggedized discretes and integrated circuits
- › Microwave transistors and diodes
- › Defense, space and high temperature DC-DC converters
- › 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).



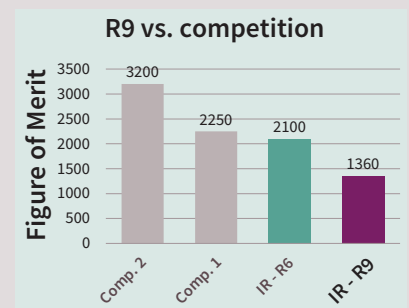
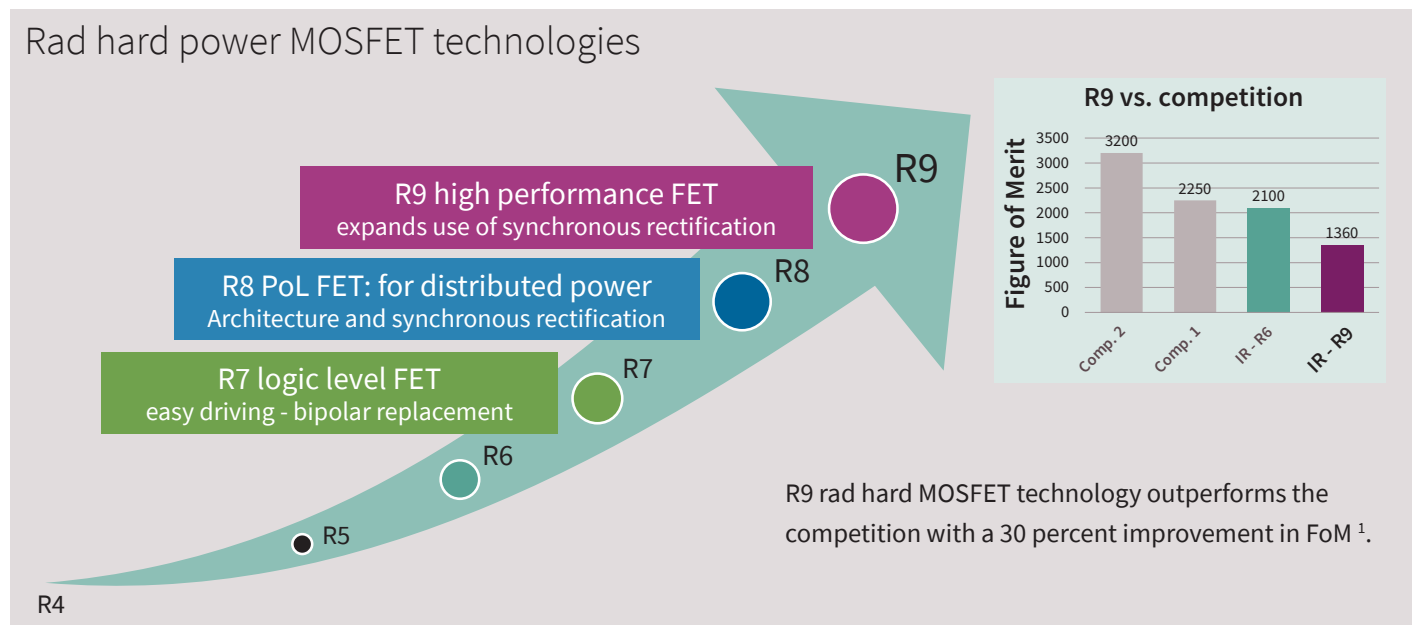
R9 superjunction technology: greater density, lower power losses

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

Rad hard power MOSFET technologies



R9 rad hard MOSFET technology outperforms the competition with a 30 percent improvement in FoM ¹.

¹ Figure of Merit is $R_{DS(on)} \times Q_g$ (Gate Charge)

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

Process flow

		JANS (or SCS)	JANTXV (or SCV)	COTS	ESCC 5000
Product screening flow steps					
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	✓			
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	✓	✓		✓
Electrical / gate stress test	See note 1	✓	✓		✓
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	✓	✓	✓	✓
Bubble test (gross leak detection)		✓	✓	✓	✓
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 ($R_{DS(on)}$), and 4011 (VSD) apply.

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.

ESCC 5000
JANS

JANTXV

SCS
SCV

European standard for discrete semiconductors, hermetically sealed and die 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.
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.
IR HiRel QIRL equivalent to JANS screening
IR HiRel QIRL equivalent to JANTXV screening

QCI sample selection & tests

		JANS (or SCS)	JANTXV (or SCV)	COTS	ESCC 5000
Quality Conformance Inspection					
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 E - product qualification	MIL-STD-750 / ESCC 5000 F4	✓	✓		

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	Family	JEDEC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHF57Z30	R5	2N7491T2	TO-205AF	30	45	12	25	1C	QPL	/701
IRHE57Z30	R5	2N7494U5	18-pin LCC	30	70	12	25	1C	QPL	/700
IRHY57Z30CM	R5	2N7482T3	TO-257AA	30	30	18	75	1C	QPL	/702
IRHNJ57Z30	R5	2N7479U3	SMD-0.5	30	20	22	75	1C	QPL	/703
IRHMB57Z60	R5		TO-254AA Tabless	30	5	45	208	3B		
IRHMS57Z60	R5	2N7478T1	TO-254AA	30	5	45	208	3B	QPL	/697
IRHM57Z60	R5		TO-254AA	30	10	35	250	3B		
IRHM7Z60	R4		TO-254AA	30	14	35	250	0		
IRHNA57Z60	R5	2N7467U2	SMD-2	30	4	75	250	3B	QPL	/683
IRHNS57Z60	R5	2N7467U2A	SupIR-SMD	30	4	75	250	3B	QPL	/683
IRHNA7Z60	R4		SMD-2	30	9	75	300	0		
IRHF57034	R5	2N7492T2	TO-205AF	60	48	12	25	1C	QPL	/701
IRHE57034	R5	2N7495U5	18-pin LCC	60	80	12	25	1C	QPL	/700
IRHNMC9A7024	R9	2N7650U8C	SMD-0.2C	60	30	25	54	1C		
IRHY57034CM	R5	2N7483T3	TO-257AA	60	40	18	75	1C	QPL	/702
IRHNJ57034	R5	2N7480U3	SMD-0.5	60	30	22	75	1C	QPL	/703
IRHYS9A7034CM	R9	2N7647T3	TO-257AA	60	19	30	75	2	QPL	/775
IRHNJ9A7034	R9	2N7647U3	SMD-0.5	60	18	40	75	2	QPL	/775
IRHNKC9A7034	R9	2N7647U3CE	SMD-0.5e	60	18	40	75	2	QPL	/775
IRHM7054	R4	2N7394	TO-254AA	60	27	35	150	3A	QPL	/603
IRHN7054	R4	2N7394U	SMD-1	60	27	35	150	3A	QPL	/603
IRH7054	R4		TO-204AE	60	25	45	150	3A		
IRHMS9A7064	R9	2N7652T1	TO-254AA	60	7	45	208	3B		
IRHMB57064	R5		TO-254AA Tabless	60	6	45	208	3B		
IRHMS57064	R5	2N7470T1	TO-254AA	60	6	45	208	3B	QPL	/698
IRHM57064	R5		TO-254AA	60	12	35	250	3B		
IRHM7064	R4	2N7431	TO-254AA	60	21	35	250	3B	QPL	/663
IRHNA9A7064	R9	2N7652U2	SMD-2	60	5	75	250			
IRHNA57064	R5	2N7468U2	SMD-2	60	6	75	250	3B	QPL	/673
IRHNS57064	R5	2N7468U2A	SupIR-SMD	60	6	75	250	3B	QPL	/673
IRHNS9A7064	R9	2N7652U2A	SupIR-SMD	60	4	100	250	3B		
IRHNA7064	R4	2N7431U	SMD-2	60	15	75	300	3B	QPL	/664
IRHE7110	R4		18-pin LCC	100	600	3.5	15	1A		
IRHF7110	R4		TO-205AF	100	600	3.5	15	1A		
IRHNM57110	R5	2N7503U8	SMD-0.2	100	220	6.9	23	1A	QPL	/743
IRHNMC57110	R5	2N7503U8	SMD-0.2	100	220	6.9	23	1A	QPL	/743
IRHE7130	R4	2N7261U	18-pin LCC	100	180	8	25	1C	QPL	/601
IRHF7130	R4	2N7261	TO-205AF	100	180	8	25	1C	QPL	/601
IRHF57130	R5	2N7493T2	TO-205AF	100	80	11.7	25	1C	QPL	/701
IRHF67130	R6		TO-205AF	100	65	12	44	2		
IRHNM9A7120	R9		SMD-0.2	100	55	23	54	1C		
IRHNMC9A7120	R9	2N7651U8C	SMD-0.2C	100	55	23	54	2		

Part number	Family	JEDEC part number	Package	V_{DS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRH7130	R4		TO-204AA	100	180	14	75	1C		
IRHM7130	R4		TO-254AA	100	180	14	75	1C		
IRHN7130	R4		SMD-1	100	180	14	75	1C		
IRHNJ7130	R4	2N7380U3	SMD-0.5	100	180	14.4	75	1C		
IRHY7130CM	R4	2N7380	TO-257AA	100	180	14.4	75	1C	QPL	/614
IRHY57130CM	R5	2N7484T3	TO-257AA	100	85	18	75	1C	QPL	/702
IRHYB67130CM	R6		TO-257AA Tabless	100	42	20	75	2		
IRHYS67130CM	R6	2N7588T3	TO-257AA	100	42	20	75	2	QPL	/755
IRHNJ67130	R6	2N7587U3	SMD-0.5	100	42	22	75	2	QPL	/746
IRHNJ57130	R5	2N7481U3	SMD-0.5	100	75	22	75	1C	QPL	/703
IRHYB9A7130CM	R9	2N7648D5	TO-257AA Tabless	100	35	30	75	2	QPL	/775
IRHYS9A7130CM	R9	2N7648T3	TO-257AA	100	35	30	75	2	QPL	/775
IRHNJ9A7130	R9	2N7648U3	SMD-0.5	100	34	35	75	2	QPL	/775
IRHNJC9A7130	R9	2N7648U3C	SMD-0.5e	100	34	35	75	2	QPL	/775
IRHNKC9A7130	R9	2N7648U3CE	SMD-0.5e	100	34	35	75	2	QPL	/775
IRH7150	R4		TO-204AE	100	65	34	150	3A		
IRHM7150	R4	2N7268	TO-254AA	100	65	34	150	3A	QPL	/603
IRHN7150	R4	2N7268U	SMD-1	100	65	34	150	3A	QPL	/603
IRHMS9A7160	R9	2N7653T1	TO-254AA	100	10	45	208			
IRHMS67160	R6	2N7580T1	TO-254AA	100	11	45	208	3A	QPL	/753
IRHMK57160	R5		TO-254AA Tabless SMD	100	13	45	208	3B		
IRHMS57160	R5	2N7471T1	TO-254AA	100	13	45	208	3B	QPL	/698
IRHMS7160	R5		TO-254AA	100	18	35	250	3B		
IRHMJ57160	R5		TO-254AA Tabless SMD	100	18	35	250	3B		
IRHM7160	R4	2N7432	TO-254AA	100	45	35	250	3B	QPL	/663
IRHNA67160	R6	2N7579U2	SMD-2	100	10	56	250	3A	QPL	/760
IRHNS67160	R6	2N7579U2A	SupIR-SMD	100	10	56	250	2	QPL	/760
IRHNA9A7160	R9	2N7653U2	SMD-2	100	7	75	250			
IRHNA57160	R5	2N7469U2	SMD-2	100	12	75	250	3B	QPL	/673
IRHNS57160	R5	2N7469U2A	SupIR-SMD	100	12	75	250	3B	QPL	/673
IRHNS9A7160	R9	2N7653U2A	SupIR-SMD	100	7	100	250			
IRHNA7160	R4	2N7432U	SMD-2	100	40	51	300	3B	QPL	/664
IRHE57133SE	R5	2N7500U5	18-pin LCC	130	100	9	25	1C	QPL	/707
IRHF57133SE	R5	2N7497T2	TO-205AF	130	100	10.5	25	1C	QPL	/706
IRHY57133CMSE	R5	2N7488T3	TO-257AA	130	90	18	75	1C	QPL	/705
IRHNJ57133SE	R5	2N7485U3	SMD-0.5	130	80	20	75	1C	QPL	/704
IRHYK57133CMSE	R5		TO-257AA	130	82	20	75	1C		
IRHMS57163SE	R5	2N7475T1	TO-254AA	130	15	45	208	3B	QPL	/685
IRHNA57163SE	R5	2N7472U2	SMD-2	130	14	75	250	3B	QPL	/684
IRHNS57163SE	R5	2N7472U2A	SupIR-SMD	130	14	75	250	1C	QPL	/684
IRHNJ67134	R6	2N7589U3	SMD-0.5	150	88	19	75	2	QPL	/746
IRHYB67134CM	R6		TO-257AA Tabless	150	90	19	75	2		
IRHYS67134CM	R6		TO-257AA	150	90	19	75	2		
IRHMS67164	R6	2N7582T1	TO-254AA	150	19	45	208	3A	QPL	/753
IRHNA67164	R6	2N7581U2	SMD-2	150	18	56	250	3A	QPL	/760

Part number	Family	JEDEC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHNS67164	R6	2N7581U2A	SupIR-SMD	150	18	56	250	3A	QPL	/760
IRHE7230	R4	2N7262U	18-pin LCC	200	350	5.5	25	1C	QPL	/601
IRHF7230	R4	2N7262	TO-205AF	200	350	5.5	25	1C	QPL	/601
IRHF57230SE	R5	2N7498T2	TO-205AF	200	240	7	25	1A	QPL	/706
IRHF57230	R5		TO-205AF	200	220	7.3	25	1A		
IRHE67230	R6		18-pin LCC	200	175	8	25	2		
IRHF67230	R6		TO-205AF	200	145	9.1	25	2		
IRH7230	R4		TO-204AA	200	400	9	75	1C		
IRHM7230	R4		TO-254AA	200	400	9	75	1C		
IRHN7230	R4		SMD-1	200	400	9	75	1C		
IRHNJ7230	R4		SMD-0.5	200	400	9.4	75	1C		
IRHY7230CM	R4	2N7381	TO-257AA	200	400	9.4	75	1C	QPL	/615
IRHNJ57230SE	R5	2N7486U3	SMD-0.5	200	220	12	75	1A	QPL	/704
IRHY57230CMSE	R5	2N7489T3	TO-257AA	200	230	12	75	1A	QPL	/705
IRHNJ67230	R6	2N7591U3	SMD-0.5	200	130	16	75	2	QPL	/746
IRHYB67230CM	R6		TO-257AA Tabless	200	130	16	75	2		
IRHYS67230CM	R6	2N7592T3	TO-257AA	200	130	16	75	2	QPL	/755
IRH7250SE	R4		TO-204AE	200	100	26	150	3A		
IRHM7250	R4	2N7269	TO-254AA	200	100	26	150	3A	QPL	/603
IRHMJ7250	R4		TO-254AA Tabless SMD	200	100	26	150	3A		
IRHN7250	R4	2N7269U	SMD-1	200	100	26	150	3A	QPL	/603
IRHN7250SE	R4		SMD-1	200	100	26	150	3A		
IRH7250	R4		TO-204AE	200	110	26	150	3A		
IRHN57250SE	R5		SMD-1	200	60	31	150	3A		
IRHMJ57260SE	R5		TO-254AA Tabless SMD	200	49	35	208	3B		
IRHMS67260	R6	2N7584T1	TO-254AA	200	29	45	208	3A	QPL	/753
IRHMB57260SE	R5		TO-254AA Tabless	200	44	45	208	3B		
IRHMK57260SE	R5		TO-254AA Tabless SMD	200	44	45	208	3B		
IRHMS57260SE	R5	2N7476T1	TO-254AA	200	44	45	208	3B	QPL	/685
IRHM57260	R5		TO-254AA	200	44	35	250	3B		
IRHM57260SE	R5		TO-254AA	200	44	35	250	3B		
IRHM7260	R4	2N7433	TO-254AA	200	70	35	250	3B	QPL	/663
IRHM7260SE	R4		TO-254AA	200	70	35	250	3B		
IRHMB7260	R4	2N7433D4	TO-254AA Tabless	200	77	35	250	3B		
IRHNS57260SE	R5	2N7473U2A	SupIR-SMD	200	38	53.5	250	3B	QPL	/684
IRHNA57260SE	R5	2N7473U2	SMD-2	200	38	53.5	250	3B	QPL	/684
IRHNA67260	R6	2N7583U2	SMD-2	200	28	56	250	3A	QPL	/760
IRHNS67260	R6	2N7583U2A	SupIR-SMD	200	28	56	250	3A	QPL	/760
IRHNA7260	R4	2N7433U	SMD-2	200	70	43	300	3B	QPL	/664
IRHNA57260	R5		SMD-2	200	38	55	300	3B		
IRHF57214SE	R5		TO-205AF	250	1550	2.2	15	1B		
IRHF57234SE	R5	2N7561T2	TO-205AF	250	420	5.4	25	1C	QPL	/706
IRHNM57214SE	R5		SMD-0.2	250	1700	3.7	40	1B		
IRHF67234	R6		TO-205AF	250	250	9.5	44	3A		

Part number	Family	JEDEC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHNJ57234SE	R5	2N7555U3	SMD-0.5	250	400	10	75	1C	QPL	/704
IRHY57234CMSE	R5	2N7556T3	TO-257AA	250	410	10	75	1C	QPL	/705
IRHYS67234CM	R6	2N7594T3	TO-257AA	250	220	12	75	2	QPL	/755
IRHNJ67234	R6	2N7593U3	SMD-0.5	250	210	12.4	75	2	QPL	/746
IRHYS9A7234CM	R9	2N7649T3	TO-257AA	250	110	17	75	2	QPL	/775
IRHNJ9A7234	R9	2N7649U3	SMD-0.5	250	110	17	75	2	QPL	/775
IRHNKC9A7234	R9	2N7649U3CE	SMD-0.5e	250	110	17	75	2	QPL	/775
IRHMS57264SE	R5	2N7477T1	TO-254AA	250	61	37	208	3A	QPL	/685
IRHMS67264	R6	2N7586T1	TO-254AA	250	41	45	208	3A	QPL	/753
IRHM7264SE	R4	2N7434	TO-254AA	250	110	31	250	3B	QPL	/661
IRHM57264SE	R5		TO-254AA	250	66	35	250	3A		
IRHNA57264SE	R5	2N7474U2	SMD-2	250	60	49	250	3A	QPL	/684
IRHNA67264	R6	2N7585U2	SMD-2	250	40	50	250	3A	QPL	/760
IRHNS67264	R6	2N7585U2A	SupIR-SMD	250	40	50	250	3A	QPL	/760
IRHNA7264SE	R4		SMD-2	250	110	34	300	3B		
IRHMS9A7264	R9		TO-254AA	250						
IRHNMC9A7224	R9		SMD-0.2C	250						
IRHNS9A7264	R9		SupIR-SMD	250						
IRHF7330SE	R4	2N7463T2	TO-205AF	400	1200	3	25	1C	QPL	/675
IRHNJ7330SE	R4	2N7465U3	SMD-0.5	400	1200	5.3	75	1C	QPL	/676
IRHM7360SE	R4	2N7391	TO-254AA	400	200	22	250	3B	QPL	/661
IRHMB7360SE	R4	2N7391D4	TO-254AA Tabless	400	200	22	250	3B		
IRHM7360	R4		TO-254AA	400	220	22	250	3B		
IRHNA7360SE	R4		SMD-2	400	200	24	300	3B		
IRHF7430SE	R4	2N7464T2	TO-205AF	500	1650	2.6	25	1C	QPL	/675
IRHNJ7430SE	R4	2N7466U3	SMD-0.5	500	1600	4.5	75	1C	QPL	/676
IRH7450	R4		TO-204AA	500	450	11	150	3A		
IRHM7450	R4	2N7270	TO-254AA	500	450	11	150	3A	QPL	/603
IRHN7450	R4	2N7270U	SMD-1	500	450	11	150	3A	QPL	/603
IRH7450SE	R4		TO-204AA	500	510	12	151	3A		
IRHM7450SE	R4		TO-254AA	500	510	12	151	3A		
IRHN7450SE	R4		SMD-1	500	510	12	151	3A		
IRHM7460SE	R4	2N7392	TO-254AA	500	320	18	250	3B	QPL	/661
IRHNS7460SE	R4	2N7392U2A	SupIR-SMD	500	320	20	300	3B	QPL*	/661
IRHI7460SE	R4		TO-259AA	500	320	20	300	3B		
IRHNA7460SE	R4		SMD-2	500	320	20	300	3B		
IRHNJ67434	R6		SMD-0.5	550	2900	3.4	75	2		
IRHNJ67C30	R6	2N7598U3	SMD-0.5	600	2900	3.4	75	2	QPL	/746
IRHY67C30CM	R6	2N7599T3	TO-257AA	600	3000	3.4	75	2		

*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	Family	JEDEC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHF597230	R5		TO-205AF	-200	540	-4.5	25	1C		
IRHE9230	R4	2N7390U	18-pin LCC	-200	800	-4	25	1B	QPL	/630
IRHF9230	R4	2N7390	TO-205AF	-200	800	-4	25	1B	QPL	/630
IRHNJ597230	R5	2N7546U3	SMD-0.5	-200	505	-8	75	1C	QPL	/712
IRHY597230CM	R5	2N7548T3	TO-257AA	-200	550	-8	75	1C	QPL	/712
IRHM9230	R4		TO-254AA	-200	800	-6.5	75	1B		
IRHNJ9230	R4		SMD-0.5	-200	800	-6.5	75	1B		
IRHY9230CM	R4	2N7383	TO-257AA	-200	800	-6.5	75	1B	QPL	/615
IRH9230	R4		TO-204AA	-200	800	-6	75	1B		
IRH9250	R4		TO-204AE	-200	315	-14	150	2		
IRHM9250	R4	2N7423	TO-254AA	-200	315	-14	150	2	QPL	/662
IRHN9250	R4	2N7423U	SMD-1	-200	315	-14	150	2	QPL	/662
IRHMS597260	R5	2N7549T1	TO-254AA	-200	103	-32	208	3A	QPL	/713
IRHNA597260	R5	2N7549U2	SMD-2	-200	102	-35.5	250	3A		
IRHNS597260	R5	2N7549U2A	SupIR-SMD	-200	102	-33.5	250	1C	QPL	/713
IRHM9260	R4	2N7426	TO-254AA	-200	160	-27	250	3A	QPL	/660
IRHNA9260	R4	2N7426U	SMD-2	-200	154	-29	300	3A	QPL	/665
IRHF597110	R5		TO-205AF	-100	1000	-2.6	15	1A		
IRHE9110	R4		18-pin LCC	-100	1100	-2.3	15	1A		
IRHNMS597110	R5	2N7506U8	SMD-0.2	-100	1200	-3.1	23	1A	QPL	/749
IRHF597130	R5		TO-205AF	-100	240	-6.7	25	1B		
IRHE9130	R4	2N7389U	18-pin LCC	-100	300	-6.5	25	1B	QPL	/630
IRHF9130	R4	2N7389	TO-205AF	-100	300	-6.5	25	1B	QPL	/630
IRHNJ597130	R5	2N7545U3	SMD-0.5	-100	205	-12.5	75	1B	QPL	/712
IRHY597130CM	R5	2N7547T3	TO-257AA	-100	215	-12.5	75	1B	QPL	/712
IRH9130	R4		TO-204AA	-100	300	-11	75	1B		
IRHM9130	R4		TO-254AA	-100	300	-11	75	1B		
IRHN9130	R4		SMD-1	-100	300	-11	75	1B		
IRHNJ9130	R4		SMD-0.5	-100	290	-11	75	1B		
IRHY9130CM	R4	2N7382	TO-257AA	-100	300	-11	75	1B	QPL	/615
IRH9150	R4		TO-204AE	-100	75	-22	150	2		
IRHM9150	R4	2N7422	TO-254AA	-100	80	-22	150	2	QPL	/662
IRHN9150	R4	2N7422U	SMD-1	-100	80	-22	150	2	QPL	/662
IRHML597160	R5	2N7550D1	TO-254AA tabless SMD	-100	50	-45	208	3A	QPL	/713
IRHMS597160	R5	2N7550T1	TO-254AA	-100	49	-45	208	3A	QPL	/713
IRHNA597160	R5	2N7550U2	SMD-2	-100	49	-52	250	3A	QPL	/713
IRHNS597160	R5	2N7550U2A	SupIR-SMD	-100	49	-47	250	1B	QPL	/713
IRHM9160	R4	2N7425	TO-254AA	-100	73	-35	250	3A	QPL	/660
IRHNA9160	R4	2N7425U	SMD-2	-100	68	-38	300	3A	QPL	/655
IRHNJ597034	R5	2N7520U3	SMD-0.5	-60	85	-22	75	1C	QPL	/732
IRHYB597034CM	R5		TO-257AA tabless	-60	87	-20	75	1C		
IRHYS597034CM	R5	2N7520T3	TO-257AA	-60	87	-20	75	1C		
IRHY597034CM	R5		TO-257AA	-60	95	-18	75	1C		

Part number	Family	JEDEC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHMB597064	R5		TO-254AA tabless	-60	18	-45	208	3A		
IRHMS597064	R5	2N7524T1	TO-254AA	-60	16	-45	208	3A	QPL	/733
IRHNA597064	R5	2N7524U2	SMD-2	-60	15	-56	250	3A		
IRHNS597064	R5	2N7524U2A	SupIR-SMD	-60	16	-56	250	3A	QPL	/733
IRHM9064	R4	2N7424	TO-254AA	-60	50	-35	250	3A	QPL	/660
IRHNA9064	R4	2N7424U	SMD-2	-60	45	-48	300	3A	QPL	/655
IRHNJ597Z30	R5	2N7519U3	SMD-0.5	-30	70	-22	75	1C	QPL	/732
IRHYB597Z30CM	R5		TO-257AA tabless	-30	48	-20	75	1C		
IRHYS597Z30CM	R5	2N7519T3	TO-257AA	-30	72	-20	75	1C	QPL	/732
IRHMS597Z60	R5	2N7523T1	TO-254AA	-30	13	-45	208	3A	QPL	/733
IRHNA597Z60	R5	2N7523U2	SMD-2	-30	13	-56	250	3A		

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	Family	JEDEC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHLF87Y20	R8		TO-205AF	20	32	12	15.6	1B		
IRHLNM87Y20	R8		SMD-0.2	20	15	17	36	1B		
IRHLUB770Z4	R7	2N7616UB	UB	60	680	0.8	0.6	0	QPL	/744
IRHLUBC770Z4	R7	2N7616UBC	UBC	60	680	0.8	0.6	0	QPL	/744
IRHLF770Z4	R7	2N7621T2	TO-205AF	60	500	1.6	5	0		
IRHLNJ77034	R7	2N7606U3	SMD-0.5	60	35	22	57	1B		
IRHLYS77034CM	R7	2N7607T3	TO-257AA	60	45	20	75	1B		
IRHLMS77064	R7		TO-254AA	60	12	45	208	3B		
IRHLNA77064	R7		SMD-2	60	12	56	250	3B		
IRHLF77110	R7	2N7068T2	TO-205AF	100	320	6	23	1B	QPL	/752
IRHLNM77110	R7		SMD-0.2	100	290	6.5	23	1B		
IRHLF7S7214	R7	2N7610T2	TO-205AF	250	1000	3.3	22.7	1B		
IRHLNS87Y50	R8		SupIR-SMD	20	2.5	75	125			

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	Family	JEDEC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class	DLA qualified	DLA slash sheet
IRHLUB7970Z4	R7	2N7626UB	UB	-60	1300	-0.53	0.6	0	QPL	/745
IRHLUBC7970Z4	R7	2N7626UBC	UBC	-60	1300	-0.53	0.6	0	QPL	/745
IRHLF7970Z4	R7		TO-205AF	-60	1200	-1.6	5	0		
IRHLNJ797034	R7	2N7624U3	SMD-0.5	-60	72	-22	57	2	QPL	/757
IRHLYS797034CM	R7	2N7625T3	TO-257AA	-60	72	-20	75	2	QPL	/757
IRHLMS797064	R7		TO-254AA	-60	18	-45	208	3B		
IRHLNA797064	R7	2N7622U2	SMD-2	-60	15	-56	250	3B		

Synchronous rectifier single MOSFETs

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

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

Dual MOSFETs (N- & P-channel)

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

Part number	Gate	Channel	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class
IRHLUC770Z4	Logic	N	LCC-6	60	750	0.89	1	0
IRHLUC7970Z4	Logic	P	LCC-6	-60	1600	-0.65	1	0
IRHLUC7670Z4	Logic	1N / 1P	LCC-6	±60	1350 / 750	0.89 / -0.65	1	0
IRHG567110	Standard	2N / 2P	MO-036AB	±100	960 / 290	0.29 / -0.96	1.4	1A
IRHG6110	Standard	2N / 2P	MO-036AB	±100	1400 / 700	1 / -0.75	1.4	
IRHQ567110	Standard	2N / 2P	28-pin LCC	±100	960 / 270	4.6 / -2.8	12	1A
IRHQ6110	Standard	2N / 2P	28-pin LCC	±100	880 / 380	3 / -2.2	12	

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	Gate	Channel	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	I_D @25°C (A)	Power dissipation (W)	ESD class
IRHLG77110	Logic	N	MO-036AB	100	220	1.8	1.4	1A
IRHLG77214	Logic	N	MO-036AB	250	1100	0.8	1.4	1B
IRHLQ77214	Logic	N	28-pin LCC	250	1000	2.6	12	
IRHG7110	Standard	N	MO-036AB	100	600	1.0	1.4	1A
IRHG57110	Standard	N	MO-036AB	100	290	1.6	1.4	1A
IRHQ7110	Standard	N	28-pin LCC	100	600	3.0	12	1A
IRHQ57110	Standard	N	28-pin LCC	100	270	4.6	12	1A
IRHQ57214SE	Standard	N	28-pin LCC	250	1500	1.9	12	1B
IRHG9110	Standard	P	MO-036AB	-100	1100	-0.75	1.4	
IRHG597110	Standard	P	MO-036AB	-100	960	-0.96	1.4	1A
IRHQ9110	Standard	P	28-pin LCC	-100	1100	-2.3	12	
IRHQ597110	Standard	P	28-pin LCC	-100	1200	-2.8	12	1A

Gate driver ICs

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)	Output voltage (V)	Supply voltage (V)	I_{OUT} source/sink (A)	Delay matching max (ns)	Propagation delay typ (ns)	ESD class
RIC7S113A4	14-lead flat pak	400	10	20	+/-2	20	120/100	1C
RIC7S113E4	18-pin LCC	400	10	20	+/-2	20	120/100	1C
RIC7113L4	MO-036AB	400	10	20	+/-2	20	120/100	1C
RIC74424H	8-lead flat pak		20	20	3		110/90	3B

Rad hard MOSFET nomenclature

IR HL YS 7 9 7 0 3 4 C M — SCS A 00

Transistor type:

- H** = Radiation hardened HEXFET
- HL** = Rad hard logic level MOSFET
- HS** = Rad hard synchronous rectifier
- HSL** = Rad hard sync. rectifier (low inductance)

Package designator

All packages have metal lids unless otherwise noted

- Blank** = TO-204AA, AE (TO-3)
- C** = Chip / die (no package)
- W** = Wafer (no package)
- E** = LCC-18
- F** = (T2) TO-205AF (TO-39, low profile)
- G** = (M1) MO-036AB (14 lead ceramic DIP)
- I** = TO-259AA
- MB** = (D4) TO-254AA tabless, low ohmic
- MK** = TO-254AA tabless, low ohmic, surface mount lead formed – at surface plane
- ML** = (D1) TO-254AA tabless, low ohmic, surface mount lead formed – below surface plane
- MS** = (T1) TO-254AA low ohmic
- N** = (U1) SMD-1
- NA** = (U2) SMD-2
- NJ** = (U3) SMD-0.5, metal lid
- NJC** = SMD-0.5, ceramic lid
- NKC** = SMD-0.5e, ceramic lid, high-voltage
- NM** = (U8) SMD-0.2, metal lid
- NMC** = SMD-0.2, ceramic lid
- NPC** = SMD-0.1, ceramic lid
- NS** = (U2A) SupIR-SMD™
- PB** = Power Block, isolated
- Q** = LCC-28 (quad die)
- UB** = (UB) LCC-4, metal lid, shielded - tied to 4th pin
- UBC** = LCC-4, ceramic lid, shielded
- UBCN** = LCC-3, ceramic lid, isolated
- UBN** = LCC-3, metal lid, isolated
- UC** = (UC) LCC-6
- V** = (T8) TO-258AA
- Y** = (T3) TO-257AA
- YA** = TO-257AA tabless
- YB** = (D5) TO-257AA tabless, low ohmic
- YJ** = (Dx) TO-257AA tabless, surface mount lead formed
- YK** = TO-257AA tabless, low ohmic, surface mount lead formed
- YS** = TO-257AA low ohmic

Technology

- Blank** = Gen 4
- 5** = R5
- 5S** = R5, S-line
- 6** = R6
- 6S** = R6, S-line
- 7** = R7
- 7S** = R7, S-line
- 8** = R8
- 9A** = R9
- CS** = CoolMOS Space

Channel

- Blank** = N-channel
- 6** = mixed N and P channel
- 9** = P-channel

Lead option

- A** = Lead form down on TO-25x (if package is SMD, then lead attached)
- B** = Lead form up on TO-25x (if package is SMD, then lead attached and formed)
- C** = Lead trimmed
- D** = On DBC carrier, applies only to SMD-1 and SMD-2

Screening level

- Blank** = no screening, COTS
- IR HiRel controlled drawing, die level**
- CDV** = 100% visual screening
- CDH** = H level
- CDK** = K level
- IR HiRel qualified lot, packaged level**
- SCX** = TX level, equivalent
- SCV** = TXV level, equivalent
- SCS** = S level, equivalent

Process variation

- SE** = Single event effect tolerant (applicable only to R4 & R5)

Pinout

- (applies only to TO-257AA package)
- Blank** **M**
 - Pin1** = Gate **Pin1** = Drain
 - Pin2** = Drain **Pin2** = Source
 - Pin3** = Source **Pin3** = Gate

Package variation

- Blank** = glass eyelet (TO-257AA)
- C** = ceramic eyelet (TO-257AA)

Voltage adder

- 0** = full spec rating (does not apply to 60 V devices)
- 3** = 30 Volts, e.g. 1x3 is 130 Volts
- 4** = 50 Volts, e.g. 2x4 is 250 Volts or, 0x4 is 60 Volts

Die size

- 1** = die size 1
- 2** = die size 1.7 & 2
- 3** = die size 3
- 4** = die size 4
- 5** = die size 5
- 6** = die size 6
- A** = die size 10
- Z** = smallest size

Voltage

- 0** = 60 Volts
- 1** = 100 Volts (or 130 V or 150 V with voltage adder)
- 2** = 200 Volts (or 250 V with voltage adder)
- 3** = 400 Volts
- 4** = 500 Volts (or 550 V with voltage adder)
- C** = 600 Volts
- Y** = 20 Volts
- Z** = 30 Volts

Total dose hardness

- Blank** = 100 krads(Si) "R" P-channel (G4 only)
- 3** = 300 krads(Si) "F"
- 4** = 600 krads(Si)
- 5** = 500 krads(Si) "G"
- 7** = 100 krads(Si) "R"
- 8** = 1000 krads(Si) "H"

Special suffix (see bottom)

Special suffix

- 00** = Gold finish – no solder dip
- 01** = CSI, customer source inspection
- 02** = Gold finish & CSI
- 03** = DPA
- 04** = DPA & gold finish
- 05** = DPA & gold finish & CSI
- 06** = X-Ray
- 07** = X-Ray & gold finish
- 08** = X-Ray & gold finish & CSI
- 09** = X-Ray & CSI

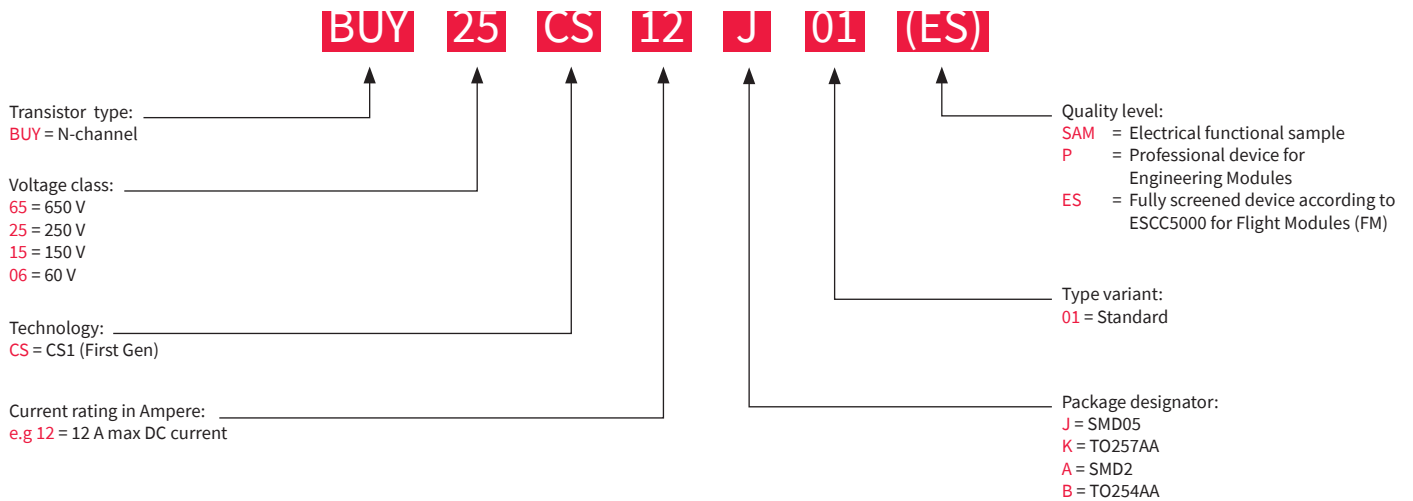
Standard gate single PowerMOS transistors (N-channel)

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	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	Q_G (nC)	I_D @25°C (A)	$I_{D,puls}$ (A)	Power dissipation (W)	Gate voltage	ESD class	ESA qualified
BUY06CS23K-01(ES)	5205 032 03	TO-257AA	60	36	26	23	100	75	+/- 20	2	QPL
BUY06CS23K-01(P)		TO-257AA	60	36	26	23	100	75	+/- 20	2	
BUY06CS35J-01(ES)	5205 032 01	SMD-05	60	28	25	35	100	75	+/- 20	2	QPL
BUY06CS35J-01(P)		SMD-05	60	28	25	35	100	75	+/- 20	2	
BUY06CS45B-01(ES)	5205 032 04	TO-254AA	60	14	75	45	200	208	+/- 20	2	QPL
BUY06CS45B-01(P)		TO-254AA	60	14	75	45	200	208	+/- 20	2	
BUY06CS80A-01(ES)	5205 032 02	SMD-2	60	5.6	175	80	300	250	+/- 20	2	QPL
BUY06CS80A-01(P)		SMD-2	60	5.6	175	80	300	250	+/- 20	2	
BUY15CS23J-01(ES)	5205 031 01	SMD-05	150	55	25	23	93	75	+/- 20	1C	QPL
BUY15CS23J-01(P)		SMD-05	150	55	25	23	93	75	+/- 20	1C	
BUY15CS23K-01(ES)	5205 031 03	TO-257AA	150	55	25	23	93	75	+/- 20	1C	QPL
BUY15CS23K-01(P)		TO-257AA	150	55	25	23	93	75	+/- 20	1C	
BUY15CS45B-01(ES)	5205 031 04	TO-254AA	150	23	75	57	180	208	+/- 20	1C	QPL
BUY15CS45B-01(P)		TO-254AA	150	23	75	57	180	208	+/- 20	1C	
BUY15CS57A-01(ES)	5205 031 02	SMD-2	150	9	160	57	224	250	+/- 20	1C	QPL
BUY15CS57A-01(P)		SMD-2	150	9	160	57	224	250	+/- 20	1C	
BUY25CS12J-01 (ES)	5205 026	SMD-05	250	100	42	12.4	50	75	+/- 20	1C	QPL
BUY25CS12J-01 (P)		SMD-05	250	100	42	12.4	50	75	+/- 20	1C	
BUY25CS12K-01 (ES)	5205 030 01	TO-257AA	250	120	42	12.4	50	75	+/- 20	1C	QPL
BUY25CS12K-01 (P)		TO-257AA	250	120	42	12.4	50	75	+/- 20	1C	
BUY25CS12K-11 (ES)	5205 030 02	TO-257AA	250	120	42	12.4	50	75	+/- 20	1C	QPL
BUY25CS12K-11 (P)		TO-257AA	250	120	42	12.4	50	75	+/- 20	1C	
BUY25CS45B-01 (ES)	5205 030 03	TO-254AA	250	45	100	45	180	208	+/- 20	1C	QPL
BUY25CS45B-01 (P)		TO-254AA	250	45	100	45	180	208	+/- 20	1C	
BUY25CS54A-01 (ES)	5205 027	SMD-2	250	25	180	54	214	250	+/- 20	1C	QPL
BUY25CS54A-01 (P)		SMD-2	250	25	180	54	214	250	+/- 20	1C	
BUY65CS08J-01(ES)	5205 033 01	SMD-05	650	370	23	8	24	75	+/- 20	1C	QPL
BUY65CS08J-01(P)		SMD-05	650	370	23	8	24	75	+/- 20	1C	
BUY65CS28A-01(ES)	5205 033 02	SMD-2	650	116	67	28	80	215	+/- 20	1C	QPL
BUY65CS28A-01(P)		SMD-2	650	116	67	28	80	215	+/- 20	1C	
CHIP L5441A(ES)		Chip of BUY06CS80A	60	5.6	175	80	300		+/- 20	2	
CHIP L5441A(P)		Chip of BUY06CS80A	60	5.6	175	80	300		+/- 20	2	
CHIP L5442A(ES)		Chip of BUY06CS35J	60	28	25	35	100		+/- 20	2	
CHIP L5442A(P)		Chip of BUY06CS35J	60	28	25	35	100		+/- 20	2	
CHIP L5461A(ES)		Chip of BUY15CS57A	150	9	160	57	224		+/- 20	1C	
CHIP L5461A(P)		Chip of BUY15CS57A	150	9	160	57	224		+/- 20	1C	
CHIP L5462A(ES)		Chip of BUY15CS23A	150	55	25	23	93		+/- 20	1C	

Part number	ESCC part number	Package	V_{DSS} (V)	$R_{DS(on)}$ @25°C (mΩ)	Q_G (nC)	I_D @25°C (A)	I_{dpuls} (A)	Power dissipation (W)	Gate voltage	ESD class	ESA qualified
CHIP L5462A(P)		Chip of BUY15CS23A	150	55	25	23	93		+/- 20	1C	
CHIP L5490 (ES)		Chip of BUY25CS12J	250	110	25	12.4	50		+/- 20	1C	
CHIP L5490 (P)		Chip of BUY25CS12J	250	110	25	12.4	50		+/- 20	1C	
CHIP L5491A(ES)		Chip of BUY25CS54A	250	25	150	54	214		+/- 20	1C	
CHIP L5491A(P)		Chip of BUY25CS54A	250	25	150	54	214		+/- 20	1C	
CHIP L5452B(ES)		Chip of BUY65CS08J	650	370	23	8	24		+/- 20	1C	
CHIP L5452B(P)		Chip of BUY65CS08J	650	370	23	8	24		+/- 20	1C	
CHIP L5454A(ES)		Chip of BUY65CS28A	650	116	67	28	80		+/- 20	1C	
CHIP L5454A(P)		Chip of BUY65CS28A	650	116	67	28	80		+/- 20	1C	

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





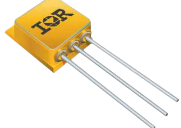
ESD class	Voltage (V)
2	2,000-3,999
3A	4,000-7,999
3B	8,000-15,999
Nonsensitive	16,000+

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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