



Power Solutions Selection guide

Magnachip Semiconductor

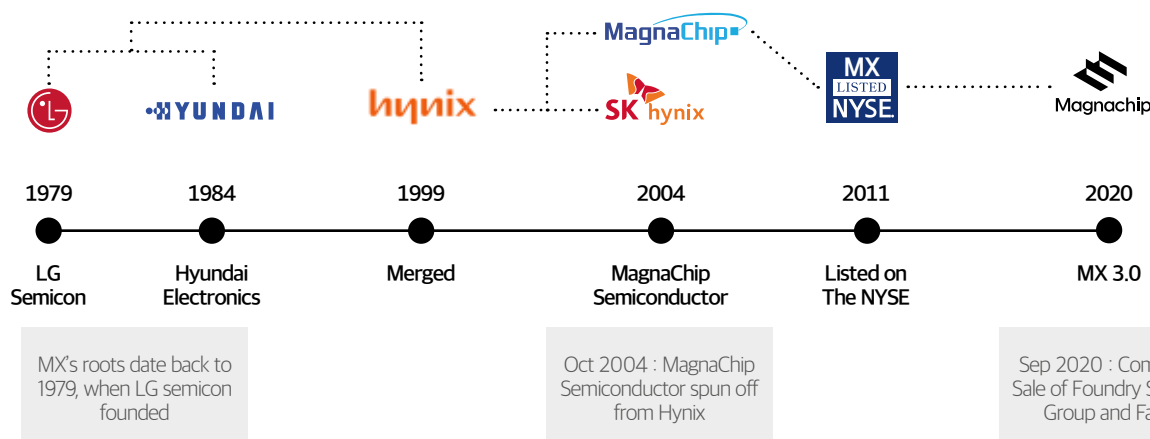
Location

Channels & Representatives

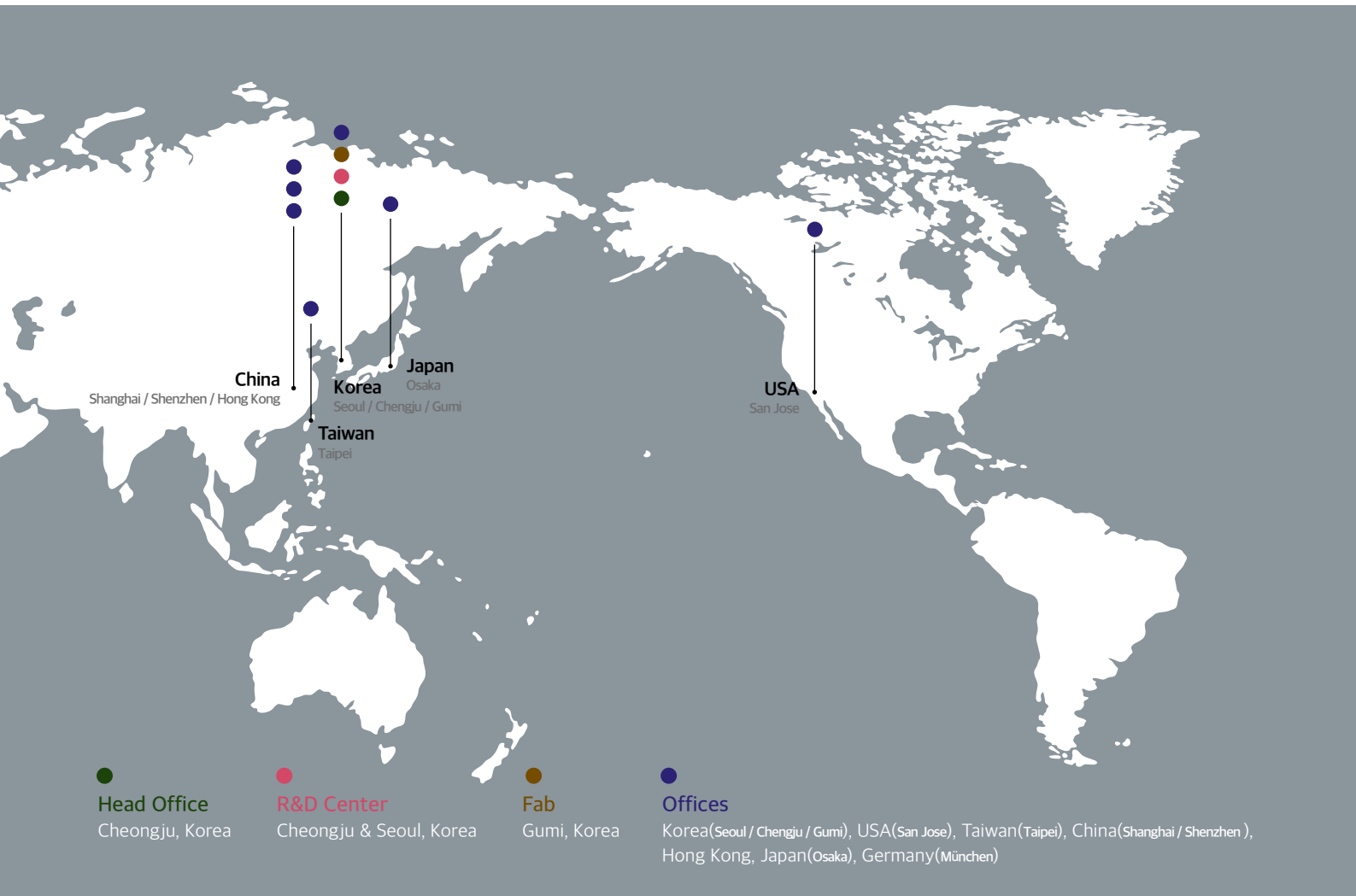
	KOREA	SaMT, G5
	CHINA	EIL, SPEC-IC, Aleetie, XUNLONG, WT, Innovation
	TAIWAN	ARTEQ, WT, ATM
	GERMANY	Arrow, Inteltek, Starday, Melchioni
	USA	Arrow, Vermont, AD sales, Everest sales, Trinity
	JAPAN	Shinden, Kaga, Hagiwara



Magnachip history



Magnachip's manufacturing facilities and R&D centers are located in South Korea, and the company's offices are located worldwide.



Location in Korea

- Asia-based supply chain
- Proven technologies
- Long operait history
- 31 K wafers / Month - 8" capacity
- 110nm to 0.5um technology
- Fab 3 is certified under IATF 16949, ISO 9001, ISO 14001, OHSAS 18001



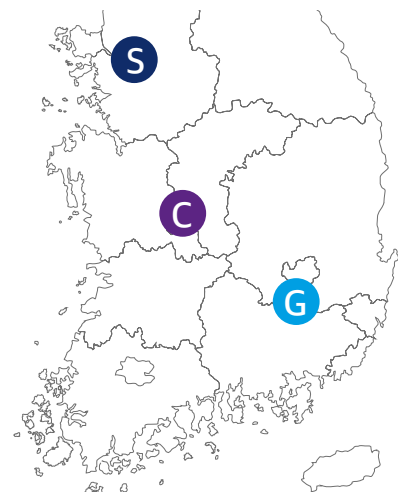
S Seoul



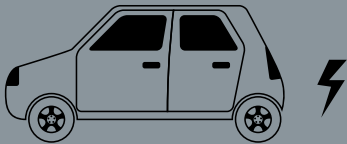
C Cheong ju



G Gumi



Power Solutions



Electric vehicles(xEV)

Power track
On board charger
Lamps
MDPS



Industrial

Motor drives
ESS, BMS
PV inverter
LED lighting



Computing

SSD, Server
Laptop / Desktop PCs
5G Power
Telecom infrastructure



Communication

Smartphone
Wearable device
Tablet PC



Consumer

TV, Monitor
Home theater
Home appliance
Digital signage



Mobility

E-bike, E-scooter
Charging station



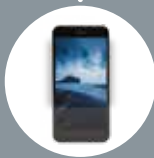
SJ MOSFET HV MOSFET

- 200V - 900V
- High performance and Optimal R_g
- TV, TA, SMPS, Lighting



MV MOSFET

- 40V - 200V
- SR MOS
- E-bike, Power tool, BMS and Automotive



LV MOSFET

- 12V - 30V
- Battery protection MOSFET, Computing
- Battery pack, power tool and E-bike



IGBT

- 650V / 1200V Discrete IGBT
- Low V_{CE(sat)} and High speed
- Automotive Motor drive, Solar, Welding machine



Power IC

- LED BLU driver and multi PMIC
- DC/DC for mobile
- LCD TV, SSD, Mobile, Lighting

Super Junction MOSFET

800V Super Junction MOSFET QZ-series for Industrial Application



Lighting



e-Bike



Adaptor



Power tool



Cleaner

- Integrated zener diode between gate and drain
- Good diode ruggedness to withstand the damage
- Optimized device for flyback topology and PFC stage
- Extremely low switching loss, high efficiency
- Low gate charge, Qg and specific on-state resistance $R_{DS(on)}$



Product Number	V_{DS} [V]	$R_{DS(ON),max}$ [mΩ]	I_D [A] @ 25°C	Package	Release Plan	Sample
MMF80R450QZTH	800	450	11	TO-220F	MP	Available
MMF80R650QZTH	800	650	8	TO-220F	MP	Available
MMD80R900QZRH	800	900	6	DPAK	MP	Available
MMF80R900QZTH	800	900	6	TO-220F	MP	Available
MMD80R1K2QZRH	800	1200	4.5	DPAK	MP	Available
MMF80R1K2QZTH	800	1200	4	TO-220F	MP	Available

600V Super Junction MOSFET R-series for Consumer and Industrial Application



Display



AMOLED



Computing



Cleaner



Cloud



EV Charger

- Low power loss by high speed switching and on-state resistance $R_{DS(on)}$
- Best performance for consumer, industrial and lighting applications
- Getting enough margin against EMI
- Easy to design with break widely ranging down voltage



Product Number	V_{DS} [V]	$R_{DS(ON),max}$ [mΩ]	I_D [A] @ 25°C	Package	Release Plan	Sample
MMF60R190RTH	600	190	20	TO-220F	Q4'21	Q2'21 ~
MMSF60R190RTH	600	190	20	TO-220SF	Q4'21	Q2'21 ~
MMD60R280RRH	600	280	13.8	DPAK	Q4'21	Q2'21 ~
MMF60R280RTH	600	280	13.8	TO-220F	Q4'21	Q2'21 ~
MMSF60R280RTH	600	280	13.8	TO-220SF	Q4'21	Q2'21 ~
MMD60R360RRH	600	360	11	DPAK	Q4'21	Q2'21 ~
MMF60R360RTH	600	360	11	TO-220F	Q4'21	Q2'21 ~
MMSF60R360RTH	600	360	11	TO-220SF	Q4'21	Q2'21 ~
MMD60R580RRH	600	580	8	DPAK	Q4'21	Q2'21 ~
MMF60R580RTH	600	580	8	TO-220F	Q4'21	Q2'21 ~
MMSF60R580RTH	600	580	8	TO-220SF	Q4'21	Q2'21 ~

Super Junction MOSFET

* Development

Product Family	Product Number	V _{DS} [V]	I _D [A] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} =10V		Q _{g,Typ} [nC]	Package
					Max	Typ		
500V N-Ch	MMF50R280PTH	500	13.0	4.0	280	250	28.6	TO-220F
	MMD50R380PRH	500	11.0	3.5	380	350	21.8	DPAK
600V N-Ch	MMQ60R070PTH	600	53.0	4.0	70	63	132	TO-247
	MMF60R115PTH	600	33.0	4.0	115	104	79	TO-220F
	MMFT60R115PCTH	600	33.0	4.0	115	104	77	TO-220FT
	MMQ60R115PCTH	600	33.0	4.0	115	104	77	TO-247
	MMF60R190PTH	600	20.0	4.0	190	170	51	TO-220F
	MMP60R190PTH	600	20.0	4.0	190	170	51	TO-220
	MMQ60R190PTH	600	20.0	4.0	190	170	51	TO-247
	MMF60R190QTH	600	20.0	4.0	190	170	36	TO-220F
	MMF60R190RTH*	600	20.0	4.0	190	170	TBD	TO-220F
	MMSF60R190QTH	600	20.0	4.0	190	170	36	TO-220SF
	MMSF60R190RTH*	600	20.0	4.0	190	170	TBD	TO-220SF
	MMFT60R195PCTH	600	20.0	4.0	195	175	44	TO-220FT
	MMP60R195PCTH	600	20.0	4.0	195	175	44	TO-220
	MMD60R280RRH*	600	13.8	4.0	280	250	TBD	DPAK
	MMD60R300QRH	600	13.8	4.0	300	270	25	DPAK
	MMF60R280QTH	600	13.8	4.0	280	250	18.3	TO-220F
	MMF60R280RTH*	600	13.8	4.0	280	250	TBD	TO-220F
	MMSF60R280QTH	600	13.8	4.0	280	250	18.3	TO-220SF
	MMSF60R280RTH*	600	13.8	4.0	280	250	TBD	TO-220SF
	MME60R290PRH	600	13.0	4.0	290	260	33	D ² PAK
	MMF60R290PTH	600	13.0	4.0	290	260	33	TO-220F
	MMFT60R290PCTH	600	13.0	4.0	290	260	33	TO-220FT
	MMP60R290PTH	600	13.0	4.0	290	260	33	TO-220
	MME60R290QRH	600	13.8	4.0	290	250	18.3	D ² PAK
	MMD60R360PRH	600	11.0	4.0	360	350	28	DPAK
	MMF60R360PTH	600	11.0	4.0	360	320	28	TO-220F
	MMP60R360PTH	600	11.0	4.0	360	320	28	TO-220
	MMD60R360QRH	600	11.0	4.0	360	320	19	DPAK
	MMD60R360RRH*	600	11.0	4.0	360	320	TBD	DPAK
	MMF60R360QTH	600	11.0	4.0	360	320	19	TO-220F
	MMF60R360RTH*	600	11.0	4.0	360	320	TBD	TO-220F

Super Junction MOSFET

* Development

Product Family	Product Number	V _{DS} [V]	I _D [A] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} =10V		Q _{g,Typ} [nC]	Package
					Max	Typ		
600V N-Ch	MMSF60R360QTH	600	11.0	4.0	360	320	19	TO-220SF
	MMSF60R360RTH*	600	11.0	4.0	360	320	TBD	TO-220SF
	MMF60R360QTH	600	11.0	4.0	360	320	19	TO-220F
	MMF60R360QTH	600	11.0	4.0	360	320	19	TO-220F
	MMFT60R380PCTH	600	11.0	4.0	380	350	25	TO-220FT
	MMD60R580PRH	600	8.0	4.0	580	530	18	DPAK
	MMIS60R580PTH	600	8.0	4.0	580	530	18	VS IPAK
	MMF60R580PTH	600	8.0	4.0	580	530	18	TO-220F
	MMP60R580PTH	600	8.0	4.0	580	530	18	TO-220
	MMD60R580QRH	600	8.0	4.0	580	530	13	DPAK
	MMD60R580RRH*	600	8.0	4.0	580	530	TBD	DPAK
	MMF60R580QTH	600	8.0	4.0	580	530	13	TO-220F
	MMF60R580RTH*	600	8.0	4.0	580	530	TBD	TO-220F
	MMSF60R580QTH	600	8.0	4.0	580	530	13	TO-220SF
	MMSF60R580RTH*	600	8.0	4.0	580	530	TBD	TO-220SF
	MMD60R750PRH	600	5.7	4.0	750	680	14	DPAK
	MMF60R750PTH	600	5.7	4.0	750	680	14	TO-220F
	MMIS60R750PTH	600	5.7	4.0	750	680	14	VS IPAK
	MMP60R750PTH	600	5.7	4.0	750	680	14	TO-220
	MMD60R900PRH	600	4.5	4.0	900	810	12.3	DPAK
	MMIS60R900PTH	600	4.5	4.0	900	810	12.3	VS IPAK
	MMD60R900QRH	600	4.4	4.0	900	760	9.6	DPAK
650V N-Ch	MMF65R190PTH	650	20.0	4.0	190	170	53	TO-220F
	MMP65R190PTH	650	20.0	4.0	190	170	53	TO-220
	MMFT65R195PTH	650	20.0	4.0	195	175	53	TO-220FT
	MME65R280QRH	650	13.8	4.0	280	240	27.8	D ² PAK
	MMP65R280QTH	650	13.8	4.0	280	240	27.8	TO-220
	MMD65R380QRH	650	10.6	4.0	380	340	20.6	DPAK
	MMF65R380QTH	650	10.6	4.0	380	340	20.6	TO-220F
	MMP65R380QTH	650	10.6	4.0	380	340	20.6	TO-220
	MMD65R600QRH	650	7.3	4.0	600	540	13.8	DPAK
	MMF65R600QTH	650	7.3	4.0	600	540	13.8	TO-220F
	MMD65R900QRH	650	4.7	4.0	900	800	11.1	DPAK

Super Junction MOSFET

Product Family	Product Number	V _{DS} [V]	I _D [A] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} =10V		Q _{g,Typ} [nC]	Package
					Max	Typ		
700V N-Ch	MME70R380PRH	700	11.0	4.0	380	340	30	D ² PAK
	MMFT70R380PTH	700	11.0	4.0	380	340	30	TO-220FT
	MMD70R600PRH	700	7.3	4.0	600	540	23	DPAK
	MMD70R600QRH	700	7.3	4.0	600	540	15	DPAK
	MMF70R600PTH	700	7.3	4.0	600	540	23	TO-220F
	MMF70R600QTH	700	7.3	4.0	600	540	15	TO-220F
	MMD70R750PRH	700	5.8	4.0	750	670	18.5	DPAK
	MMD70R900PRH	700	5.0	4.0	900	810	15	DPAK
	MMD70R900QRH	700	5.0	4.0	900	810	11	DPAK
	MMF70R900PTH	700	5.0	4.0	900	810	15	TO-220F
	MMF70R900QTH	700	5.0	4.0	900	810	11	TO-220F
	MMIS70R900PTH	700	5.0	4.0	900	810	15	VS IPAK
	MMD70R1K4PRH	700	3.2	4.0	1400	1260	11	DPAK
	MMHS70R1K4PRH	700	3.2	4.0	1400	1260	11	SOT-223-2L
	MMIS70R1K4PTH	700	3.2	4.0	1400	1260	11	VS IPAK
	MMHS70R1K6QURH	700	5.4	4.0	1600	1410	6.1	SOT-223-2L
800V N-Ch	MME80R290PRH	800	17.0	4.0	290	250	56	D ² PAK
	MMF80R450PTH	800	11.0	4.0	450	390	37.6	TO-220F
	MMF80R450QZTH	800	11.0	4.0	450	390	25	TO-220F
	MMF80R650PTH	800	8.0	4.0	650	560	25.8	TO-220F
	MMF80R650QZTH	800	8.0	4.0	650	560	18	TO-220F
	MMD80R900PCRH	800	6.0	4.0	900	780	17.6	DPAK
	MMF80R900PCTH	800	6.0	4.0	900	780	17.6	TO-220F
	MMP80R900PCTH	800	6.0	4.0	900	780	17.6	TO-220
	MMD80R900QZRH	800	6.0	4.0	900	780	13	DPAK
	MMF80R900QZTH	800	6.0	4.0	900	780	13	TO-220
	MMD80R1K2PRH	800	4.5	4.0	1200	950	15.2	DPAK
	MMF80R1K2PTH	800	4.5	4.0	1200	950	15.2	TO-220F
	MMD80R1K2QZRH	800	4.5	4.0	1200	950	11.0	DPAK
	MMF80R1K2QZTH	800	6.0	4.0	1200	950	13.0	TO-220F
900V N-Ch	MMD90R1K4PRH	900	5.0	4.0	1490	1260	13.6	DPAK
	MMIS90R1K4PTH-PE	900	5.0	4.0	1490	1260	13.6	IPAK-PE

High Voltage Planar MOSFET

Product Family	Product Number	V _{DS} [V]	I _D [A] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} =10V		Q _{g,Typ} [nC]	Package
					Max	Typ		
200V N-Ch	MDD4N20YRH	200	3.0	2.0	1.35	1.10	3.2	DPAK
	MDHT4N20YURH	200	0.85	2.0	1.35	1.10	3.2	SOT-223
	MDD7N20CRH	200	5.0	4.0	0.69	0.58	5.1	DPAK
250V N-Ch	MDD4N25RH	250	3.0	5.0	1.75	1.38	4.2	DPAK
	MDHT4N25URH	250	0.83	5.0	1.75	1.38	4.2	SOT-223
	MDD7N25RH	250	6.2	5.0	0.55	0.43	10.4	DPAK
	MDHT7N25URH	250	1.4	5.0	0.55	0.43	11	SOT-223
	MDD14N25CRH	250	10.2	4.0	0.28	0.22	20	DPAK
	MDP14N25CTH	250	14.0	4.0	0.28	0.22	20	TO-220
400V N-Ch	MDD3N40RH	400	2.0	5.0	3.40	2.80	5.1	DPAK
	MDHT3N40URH	400	1.5	5.0	3.40	2.80	5.1	SOT-223
	MDIS3N40TH	400	2.0	5.0	3.40	2.80	5.1	VS IPAK
	MDD5N40RH	400	3.4	5.0	1.60	1.20	9	DPAK
	MDIS5N40TH	400	3.4	5.0	1.60	1.20	9	VS IPAK
	MDD9N40RH	400	6.0	5.0	0.85	0.67	9.6	DPAK
500V N-Ch	MDD3N50GRH	500	2.8	5.0	2.50	2.10	6.75	DPAK
	MDF3N50TH	500	2.8	5.0	2.50	2.10	6.75	TO-220F
	MDD5N50RH	500	4.4	5.0	1.40	1.15	12.2	DPAK
	MDD5N50FRH	500	4.2	4.5	1.58	1.25	12.2	DPAK
	MDD5N50GRH	500	4.4	5.0	1.40	1.15	12.2	DPAK
	MDF5N50TH	500	5.0	5.0	1.40	1.15	12.2	TO-220F
	MDF5N50BTH	500	5.0	4.0	1.40	1.15	11.5	TO-220F
	MDF5N50FTH	500	4.5	4.5	1.58	1.25	12.1	TO-220F
	MDP5N50TH	500	5.0	5.0	1.40	1.15	12.2	TO-220
	MDIS5N50TH	500	4.4	5.0	1.40	1.15	12.2	VS IPAK
	MDF7N50TH	500	7.0	5.0	0.90	0.76	17.5	TO-220F
	MDF7N50BTH	500	7.0	4.0	0.90	0.76	14.9	TO-220F
	MDP7N50TH	500	7.0	5.0	0.90	0.76	17.5	TO-220
	MDF9N50TH	500	9.0	5.0	0.85	0.72	19	TO-220F
	MDF9N50BTH	500	9.0	4.0	0.85	0.72	15.7	TO-220F
	MDF9N50FTH	500	8.0	4.5	0.97	0.75	16.3	TO-220F
	MDP9N50FTH	500	8.0	4.5	0.97	0.75	16.3	TO-220
	MDF12N50TH	500	12.0	5.0	0.65	0.55	22.7	TO-220F
	MDF12N50BTH	500	11.5	4.0	0.65	0.55	19.3	TO-220F
	MDF12N50FTH	500	11.5	4.5	0.75	0.59	20	TO-220F
	MDF13N50TH	500	13.0	5.0	0.50	0.39	33	TO-220F
	MDF13N50BTH	500	13.0	4.0	0.50	0.39	27	TO-220F

High Voltage Planar MOSFET

Product Family	Product Number	V _{DS} [V]	I _D [A] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} =10V		Q _{g,Typ} [nC]	Package
					Max	Typ		
500V N-Ch	MDF13N50GTH	500	13.0	5.0	0.50	0.39	33	TO-220F
	MDFS13N50GTH	500	13.0	5.0	0.50	0.39	33	TO-220FS
	MDP13N50TH	500	13.0	5.0	0.50	0.39	33	TO-220
	MDP13N50BTH	500	13.0	4.0	0.50	0.39	27	TO-220
	MDF16N50GTH	500	16.0	5.0	0.35	0.30	34.9	TO-220F
	MDF18N50TH	500	18.0	5.0	0.27	0.22	48	TO-220F
	MDF18N50BTH	500	18.0	4.0	0.27	0.22	48	TO-220F
	MDP18N50TH	500	18.0	5.0	0.27	0.22	48	TO-220
	MDP18N50BTH	500	18.0	4.0	0.27	0.22	48	TO-220
	MDQ23N50DTP	500	23.0	4.0	0.25	0.20	65	TO-247
600V N-Ch	MDD2N60RH	600	1.9	5.0	4.50	3.60	6.7	DPAK
	MDD4N60RH	600	3.5	5.0	2.00	1.70	12.1	DPAK
	MDF6N60TH	600	6.0	5.0	1.40	1.20	15.4	TO-220F
	MDF7N60TH	600	7.0	5.0	1.15	1.00	17.8	TO-220F
	MDF7N60BTH	600	7.0	4.0	1.15	1.00	20.1	TO-220F
	MDF8N60TH	600	8.0	5.0	1.00	0.85	21	TO-220F
	MDF8N60BTH	600	8.0	4.0	1.05	0.85	18.1	TO-220F
	MDF9N60TH	600	9.0	5.0	0.75	0.65	27	TO-220F
	MDF9N60BTH	600	9.0	4.0	0.80	0.65	23.9	TO-220F
	MDP9N60TH	600	9.0	5.0	0.75	0.65	27	TO-220
	MDF10N60BTH	600	10.0	4.0	0.70	0.58	26.6	TO-220F
	MDF10N60GTH	600	10.0	5.0	0.70	0.58	32	TO-220F
	MDFS10N60DTH	600	10.0	4.0	0.75	0.62	42.9	TO-220FS
	MDF11N60TH	600	11.0	4.0	0.55	0.45	38.4	TO-220F
	MDFS11N60TH	600	11.0	4.0	0.55	0.45	38.4	TO-220FS
	MDP11N60TH	600	11.0	5.0	0.55	0.45	38.4	TO-220
	MDF15N60GTH	600	15.0	5.0	0.40	0.34	49	TO-220F
	MDP15N60GTH	600	15.0	5.0	0.40	0.34	49	TO-220
650V N-Ch	MDF4N65BTH	650	4.0	4.0	2.20	1.80	11.6	TO-220F
	MDIS4N65BTH	650	3.7	4.0	2.20	1.80	11.6	VS IPAK
	MDF6N65BTH	650	6.0	4.0	1.45	1.22	19.4	TO-220F
	MDI6N65BTH	650	5.7	4.0	1.45	1.22	19.4	IPAK
	MDF7N65BTH	650	7.0	4.0	1.35	1.15	18.4	TO-220F
	MDF10N65BTH	650	10.0	4.0	1.00	0.85	29.3	TO-220F
	MDF11N65BTH	650	12.0	4.0	0.65	0.55	31	TO-220F
	MDFS11N65BTH	650	12.0	4.0	0.65	0.55	31	TO-220FS
	MDF13N65BTH	650	14.0	4.0	0.46	0.40	54	TO-220F

Medium Voltage MOSFET

TO-Leadless (TOLL) Package for Medium Voltage MOSFET for High Power Application



Vehicle



e-Bike



Motor



BMS

- Low thermal and package resistance
Board space saving by PCB footprint reduction over 25%
: TO263-7L 150mm² → TOLL 115mm²
- Optimized solution for high power applications such as
: Light electric vehicles, battery protection switch & DC-DC Converter
Various voltage line-up for TO-Leadless package



Product Number	V _{DS} [V]	R _{DS(ON),max} [mΩ]	I _D [A] @ 25°C	Package	Release Plan	Sample
MDT08N017RH	80	1.7	300	TO-Leadless (TOLL)	Q1'21	Available
MDT10N023RH	100	2.3	300		Q1'21	Available
MDT14N043RH	135	4.3	200		Q1'21	Available
MDT15N069RH	150	6.9	160		Q2'21	Q1'21
MDT20N100PTRH	200	10	120		Q3'21	Q2'21

200V Medium Voltage MOSFET for High Performance Motor Drive Application



Vehicle



e-Bike



Motor



BMS

- 'Best in class' on-state resistance
- Fast switching performance and excellent quality for easy design
- Optimized device for motor drive and general purpose applications such as
: Light electric vehicles, battery protection switch & DC-DC converter



Product Number	V _{DS} [V]	R _{DS(ON),max} [mΩ]	I _D [A] @ 25°C	Package	Release Plan	Sample
MDT20N100PTRH	200	10.0	120	TO-Leadless	Q3'21	Q2'21
MDY20N103PTRH		10.3	120	M2PAK-7P	Q3'21	Q2'21
MDP20N105PTTH		10.5	120	TO-220	Q3'21	Q2'21

Medium Voltage MOSFET

* Development

Product Family	Product Number	V _{DS} [V]	I _{DS} [V] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} = 10V	Q _{g, Typ} [nC] @ 10V	Package
			Package				
40V N-Ch	MDU04N010VRH	40	100.0	2.0	1.0	103.5	PDFN56
	MDU04N027RH	40	70.0	3.0	2.2	78.0	PDFN56
	MDU1721VRH	40	100.0	3.0	1.4	100.0	PDFN56
	MDU1722VRH	40	100.0	3.0	2.2	64.0	PDFN56
	MDP1723TH	40	120.0	4.0	2.3	88.3	TO-220
	MDF1723TH	40	60.0	4.0	2.6	88.3	TO-220F
	MDD1752RH	40	50.0	3.0	8.0	26.4	DPAK
	MDE1752RH	40	120.0	3.0	8.0	26.4	D ² PAK
	MDI1752TH	40	50.0	3.0	8.0	26.4	IPAK
	MDF1752TH	40	60.0	3.0	8.0	26.4	TO-220F
40N P-Ch	MDD3752RH	-40	50.0	-3.0	17.0	44.1	DPAK
	MDF3752TH	-40	60.0	-3.0	17.0	44.1	TO-220F
	MDS3753EURH	-40	40.0	-3.0	30.0	32.7	SOIC-8L
	MDD3754RH	-40	50.0	-3.0	43.0	19.2	DPAK
60V N-Ch	MDV1951BURH	60	12.0	3.0	45.0	9.0	PDFN33
	MDD1951RH	60	50.0	3.0	45.0	4.8	DPAK
	MDS1951URH	60	12.0	3.0	45.0	9.0	SOIC-8L
	MDU06N010PSVRH*	60	TBD	3.5	1.0	80.0	PDFN56
	MDES06N013PSRH*	60	TBD	3.5	1.3	80.0	D ² PAK-7L
60V Dual N-Ch	MDS5951URH	60	12.0	3.0	50.0	9.0	SOIC-8L
78V N-Ch	MDD08N067RH*	78	70.0	3.7	6.7	44.8	DPAK
80V N-Ch	MDP1930TH	80	120.0	4.0	2.5	186.3	TO-220
	MDP1932TH	80	120.0	4.0	3.4	105.0	TO-220
	MDE1932RH	80	120.0	4.0	3.4	116.0	D ² PAK
	MDU1931VRH	80	100.0	4.0	3.6	68.5	PDFN56
	MDP1933TH	80	120.0	4.0	7.0	59.4	TO-220
	MDF1933TH	80	60.0	4.0	7.5	59.4	TO-220F
	MDE08N054RH	80	120.0	3.8	5.4	61.0	D ² PAK
	MDP08N055TH	80	120.0	3.8	5.5	61.0	TO-220
	MDES08N019RH	80	180.0	3.8	1.9	172.0	D ² PAK-7L
	MDY08N019RH	80	240.0	3.8	1.9	166.0	M2PAK-7P
	MDT08N017RH*	80	300.0	3.8	1.7	166.0	TOLL
	MDP08N032TH	80	120.0	3.5	3.2	105.0	TO-220

Medium Voltage MOSFET

* Development

Product Family	Product Number	V _{DS} [V]	I _{DS} [V] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} = 10V	Q _{g, Typ} [nC] @ 10V	Package
			Package				
100V N-Ch	MDP1921TH	100	120.0	4.0	4.5	100.0	TO-220
	MDE1991RH	100	120.0	4.0	4.4	115.0	D ² PAK
	MDP1991TH	100	120.0	4.0	5.9	100.0	TO-220
	MDF1921TH	100	60.0	4.0	4.8	100.0	TO-220F
	MDE10N026RH	100	120.0	4.0	2.6	147.0	D ² PAK
	MDES10N025RH	100	180.0	4.0	2.5	147.0	D ² PAK-7L
	MDY10N025RH	100	240.0	4.0	2.5	167.0	M2PAK-7P
	MDQ10N026TH	100	160.0	4.0	2.6	147.0	TO-247
	MDP10N027TH	100	120.0	4.0	2.8	147.0	TO-220
	MDT10N023RH*	100	300.0	4.0	2.3	167.0	TOLL
	MDE10N050RH	100	120.0	4.0	5.0	78.0	D ² PAK
	MDP10N055TH	100	120.0	4.0	5.5	78.0	TO-220
	MDF10N055TH	100	80.0	4.0	5.5	85.0	TO-220F
	MDP1922TH	100	120.0	4.0	8.4	54.5	TO-220
	MDF1922TH	100	60.0	4.0	8.7	54.5	TO-220F
	MDP1923TH	100	120.0	4.0	13.9	42.8	TO-220
	MDD1901RH	100	40.0	4.0	22.0	75.0	DPAK
	MDP1901TH	100	120.0	4.0	22.0	75.0	TO-220
	MDD1902RH	100	40.0	4.0	28.0	39.8	DPAK
	MDD1903RH	100	25.0	3.0	105.0	8.8	DPAK
	MDIS1903TH	100	25.0	3.0	105.0	8.8	VS IPAK
	MDF1903TH	100	60.0	3.0	110.0	8.8	TO-220F
	MDS1903URH	100	24.0	3.0	110.0	8.8	SOIC-8L
	MDD1904RH	100	25.0	3.0	140.0	6.7	DPAK
	MDV10N1K1URH	100	20.0	3.0	110.0	9.0	PDFN33
	MDHT10N1K1URH	100	16.0	3.0	115.0	9.0	SOT-223
	MDU10N180RH	100	40.0	2.0	18.0	30.8	PDFN56
	MDU10N070RH	100	53.0	2.2	7.4	63.0	PDFN56
135V N-Ch	MDQ14N049TH	135	160.0	3.9	4.9	123.0	TO-247
	MDES14N045RH	135	180.0	3.9	4.5	123.0	D ² PAK-7L
	MDY14N045RH	135	240.0	3.9	4.5	154.0	M2PAK-7P
	MDP14N050TH	135	120.0	3.9	5.0	123.0	TO-220
	MDT14N043RH*	135	TBD	3.9	4.3	154.0	TOLL

Medium Voltage MOSFET

* Development

Product Family	Product Number	V _{DS} [V]	I _{DS} [V] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} = 10V	Q _{g, Typ} [nC] @ 10V	Package
			Package				
150V N-Ch	MDP15N075TH	150	120.0	4.5	7.5	91.0	TO-220
	MDT15N069TH*	150	160.0	4.5	6.9	TBD	TOLL
	MDD1051RH	150	50.0	3.2	46.0	19.6	DPAK
200V N-Ch	MDP20N105PTTH*	200	120.0	4.3	10.5	TBD	TO-220
	MDY20N103PTRH*	200	120.0	4.3	10.3	TBD	M2PAK-7P
	MDT20N100PTRH*	200	120.0	4.3	10.0	TBD	TOLL

Low Voltage BatteryFET

Dedicated Solution for Battery Protection Application



Mobile



Tablet PC

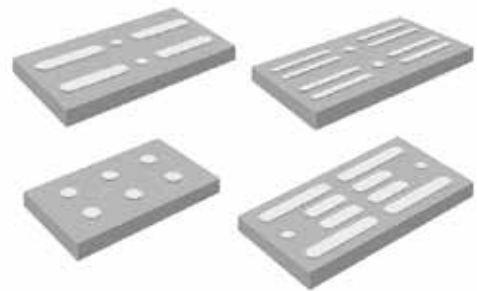


Earphone



Smart Watch

- Low on-state resistance and high thermal performance
- Serves ESD protection to enhance the functionality of PCM*
- Safe system operation with over-voltage and over-current protection
- Common drain N-channel to enable bi-directional current flow
- Various voltage line-up for WLCSP
 - Optimized pad layout with outstanding performance
 - Customized pad drawing and package size



Product Number	V_{SS} [V]	V_{GS} [$\pm$ V]	I_S [A] @ 25°C	$R_{SS(ON),max}$ [m Ω] @ $V_{GS} =$		Package	Release Plan	Sample
				3.8V	4.5V			
MDWC0150ERH	12	8.0	19.0	2.85	2.75	WLCSP-6P	Q4'20	Available
MDWC0150EBRH	12	8.0	19.0	2.85	2.75	WLCSP-10P	Q4'20	Available
MDWC0152ERH	12	8.0	15.0	5.5	5.1	WLCSP-6P	Q4'20	Available
MDWC0151ERH	24	12.0	22.0	3.1	2.8	WLCSP-10P	MP	Available

* PCM: Protection Circuit Module

* Development

Product Family	Product Number	Configuration	V_{SS} [V]	$V_{GS(th),max}$ [V]	I_S (A) @ 25°C	V_{GS} [$\pm$ V]	$R_{SS(ON),max}$ [m Ω] @ $V_{GS} =$		Package
							3.8V	4.5V	
12V N-Ch	MDWC0340EBRH	Common Drain	12	1.5	13.6	8.0	3.60	3.30	WLCSP-6P
	MDWC0342ERH	Common Drain	12	1.5	9.6	8.0	5.75	5.70	WLCSP-6P
	MDWC0150ERH*	Common Drain	12	1.3	19.0	8.0	2.85	2.75	WLCSP-6P
	MDWC0150EBRH*	Common Drain	12	1.3	19.0	8.0	2.85	2.75	WLCSP-10P
	MDWC0152ERH*	Common Drain	12	1.4	15.0	8.0	5.50	5.10	WLCSP-6P
20V N-Ch	MDWC0337ERH	Common Drain	20	1.5	6.4	8.0	12.90	11.90	WLCSP-4P
24V N-Ch	MDWC0151ERH	Common Drain	24	1.2	22.0	12.0	3.10	2.80	WLCSP-10P

Low Voltage Computing MOSFET

Product Family	Product Number	Configuration	V _{DS} [V]	I _D [A] @ 25°C	V _{GS(th),max} [V]	R _{DS(ON),max} [mΩ] @ V _{GS} =		Q _{G, Typ} [nC] @ 10V	Q _{gs} [nC]	Q _{gd} [nC]	Package
						10V	4.5V				
30V N-Ch	MDD1501RH	Single	30	50.0	2.7	5.6	8.6	20.7	3.7	2.9	DPAK
	MDD1502RH	Single	30	50.0	2.7	8.5	13.0	14.3	2.8	2.3	DPAK
	MDD1503RH	Single	30	50.0	2.7	4.7	6.8	28.0	5.9	4.2	DPAK
	MDD1504RH	Single	30	50.0	2.7	12.7	18.8	9.7	1.8	3.3	DPAK
	MDIS1501TH	Single	30	50.0	2.7	5.6	8.6	20.7	3.7	2.9	VS IPAK
	MDIS1502TH	Single	30	50.0	2.7	8.5	13.0	14.3	2.6	2.3	VS IPAK
	MDU1513URH	Single	30	45.0	2.7	4.6	7.0	27.0	5.4	4.3	PDFN56
	MDU1514URH	Single	30	45.0	2.7	6.0	9.0	19.0	3.0	2.8	PDFN56
	MDU1515URH	Single	30	45.0	2.7	7.2	11.0	17.5	3.6	2.8	PDFN56
	MDU1517RH	Single	30	100.0	2.7	2.9	4.4	41.5	8.1	7.9	PDFN56
	MDU1518URH	Single	30	45.0	2.7	4.2	6.2	28.8	5.7	4.5	PDFN56
	MDS1521URH	Single	30	32.0	2.7	4.0	5.5	38.3	7.6	13.3	SOIC-8L
	MDV1522URH	Single	30	28.0	2.7	4.9	6.8	29.4	5.6	4.7	PDFN33
	MDV1523URH	Single	30	24.0	2.7	6.1	8.4	25.5	4.7	3.6	PDFN33
	MDS1524URH	Single	30	19.3	2.7	8.1	11.6	16.2	3.1	2.7	SOIC-8L
	MDV1524URH	Single	30	24.0	2.7	8.1	11.6	15.9	3.1	2.8	PDFN33
	MDS1526URH	Single	30	16.1	2.7	11.0	16.4	11.2	2.0	1.8	SOIC-8L
	MDV1526URH	Single	30	24.0	2.7	11.0	16.4	11.2	2.1	1.9	PDFN33
	MDS1527URH	Single	30	13.1	2.7	15.9	23.7	7.8	1.7	1.2	SOIC-8L
	MDV1527URH	Single	30	20.0	2.7	15.9	23.7	7.9	1.6	1.3	PDFN33
	MDS1528URH	Single	30	11.9	2.7	18.8	27.8	7.3	1.6	1.2	SOIC-8L
	MDV1529EURH	Single	30	28.0	2.7	3.7	5.2	44.0	7.0	11.0	PDFN33
	MDV1595SURH	Single	30	?	2.0	10.7	13.0	22.3	3.0	2.7	PDFN33
	MDS1651URH	Single	30	20.0	3.0	17.0	22.0	13.7	2.0	3.5	SOIC-8L
	MDS1652EURH	Single	30	20.0	3.0	5.0	8.5	31.0	5.4	5.5	SOIC-8L
	MDS1653URH	Single	30	20.0	3.0	12.0	17.5	17.6	3.0	3.5	SOIC-8L
	MDS1654URH	Single	30	20.0	3.0	9.5	13.0	13.7	2.0	3.5	SOIC-8L
	MDS1656URH	Single	30	20.0	3.0	28.0	42.0	6.94	1.54	1.96	SOIC-8L
30V Dual N-Ch	MDS5601URH	Dual	30	20.0	2.7	10.5	16.1	15.7	3.4	2.5	SOIC-8L
	MDS5652URH	Dual	30	20.0	3.0	22.0	35.0	11.7	2.1	3.2	SOIC-8L
	MDU5512URH	Asymmetric	30	28.0	2.4	8.9	12.5	17.3	3.0	2.7	Dual PDFN56
30V P-Ch	MDS3603URH	Single	-30	-20.0	-3.0	10.1		38.4	5.9	8.2	SOIC-8L
	MDS3604URH	Single	-30	-17.1	-3.0	12.1		30.5	5.2	7.0	SOIC-8L
	MDS3651URH	Single	-30	-20.0	-3.0	35.0	55.0	18.4	3.1	3.6	SOIC-8L
	MDS3652URH	Single	-30	-20.0	-3.0	17.0	27.0	35.0	7.8	6.2	SOIC-8L
	MDS3653URH	Single	-30	-20.0	-2.0	7.0	15.0	70.0	8.0	15.0	SOIC-8L
	MDU3603RH	Single	-30	-40.0	-3.0	9.1		38.4	5.9	8.2	PDFN56
	MDU3605RH	Single	-30	-40.0	-3.0	17.0	27.0	22.0	3.3	4.3	PDFN56
	MDV3604URH	Single	-30	-20.0	-3.0	12.1		30.5	5.2	7.0	PDFN33
30V P-Ch 30V Dual N/P-Ch	MDV3605URH	Single	-30	-20.0	-3.0	18.0	28.0	22.0	3.3	4.3	PDFN33
	MDS9651URH	Complementary	30	14.0	3.0	28.0	42.0	6.94	1.54	1.96	SOIC-8L
	MDS9652EURH	Complementary	30	14.0	3.0	23.0	30.0	12.80	1.90	2.70	SOIC-8L
			-30	-14.0	-3.0	38.0	52.0	25.1	4.1	4.9	

IGBT

IGBT Wafer Business for High Power Module



Solar



Motor drive

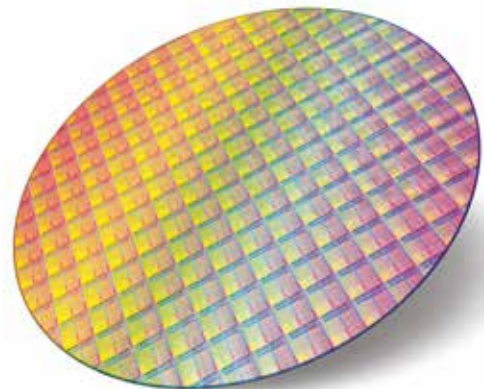


Welding



IH

- 'State of the art' low switching and conduction loss by innovative IEGT* design
- Short circuit withstand time over 10us
- Positive temperature coefficient, easy for parallel use
- Optimized for welding machine, induction heating, solar inverter etc.
- Design capability to 600A for high current device
 - Dedicated design solution for high power module
 - Embedded components of temperature and current sensors
 - Wide Safe operating area with short-circuit design



Product Number	V_{CE} [V]	I_c [A] @ 100°C	$V_{CE(sat)}$ [V]	Short circuit withstand time [μs]	Package	Release Plan	Sample
MBW75T120PSF	1200	75	1.7	10	Sawn on foil	Q4'21	Q3'21
MBW100T120PSF	1200	100	2.1	10	Sawn on foil	MP	Available

* IEGT: Injection-enhanced Gate Transistor

IGBT

Discrete IGBT

* Development

Type	Product Family	Product Number	V _{CE} [V]	I _c [A] @ 100°C	V _{CE(sat)} [V]	Switching Energy [mJ]		Short circuit withstand time [μs]	Option	Status
						E _{on}	E _{off}			
Low Conduction	650V	MBF15T65PEHTh	650	15	1.65	0.26	0.14	5	Diode co-pak	TO-220FB
		MBQ75T65PEHTh*	650	75	1.80	TBD	1.00	5	Diode co-pak	TO-247
High speed	650V	MBQ40T65QESTH	650	40	1.80	0.50	0.40	-	Diode co-pak	TO-247
		MBQ50T65FESCTH	650	50	1.95	1.40	0.37	5	Diode co-pak	TO-247
		MBQ60T65PESTH	650	60	1.90	0.92	0.53	5	Diode co-pak	TO-247
	1200V	MBQ25T120FESCTH	1200	25	2.00	1.44	0.55	10	Diode co-pak	TO-247
		MBQ40T120FESTH	1200	40	2.00	1.96	0.54	10	Diode co-pak	TO-247
		MBQ40T120QESTH	1200	40	2.00	1.96	0.54	3	Diode co-pak	TO-247

IGBT Chip

* Development

Type	Product Family	Product Number	V _{CE} [V]	I _c [A] @ 100°C	V _{CE(sat)} [V]	Short circuit withstand time [μs]	Option	Status
IGBT Chip	1200V	MBW50T120PHF	1200	150	1.85	10	Internal R _g =4.0Ω	Sawn on foil
		MBW75T120PSF*	1200	75	1.70	10	Internal R _g =7.5Ω	Sawn on foil
		MBW100T120PHF	1200	100	1.70	10	Internal R _g =5.0Ω	Sawn on foil
		MBW100T120PSF	1200	100	2.10	10	Internal R _g =5.0Ω	Sawn on foil

Power IC

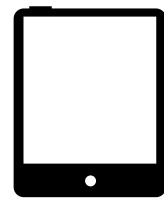
Magnachip has developed various power products with outstanding performance and through design experience for highly integrated power management product
: LED BLU driver, power management, switching, multi-function linear regulator ICs for TV, Display panel, SSD and lighting



- Buck or Boost
- Current Comp.
- PWM Programmable OTP



- Buck & Boost
- Inv. Buck- Boost
- LDOs
- PWM/PFM/PSM
- SPI/OTP



- Sync. Buck
- Sync. Boost
- Fast Response
- Low Resistance
- I2C/OTP
- Constant On Time

LED BLU Driver

Product Number	Topology	# of Channels	Input Voltage [V]	LED Current / Channel [mA]	Max Output Voltage [V]	Package
MAP3249SIRH	Linear Mode	4	8.5 ~ 28	200	60	SOIC-16L
MAP3612SIRH	Switch Mode	2	8.5 ~ 18	Ext. MOSFET	Ext. MOSFET	SOIC-16L
MAP3621SIRH	Switch Mode	1	8.5 ~ 18	Ext. MOSFET	Ext. MOSFET	SOIC-14L
MAP3622SIRH	Switch Mode	2	8.5 ~ 18	Ext. MOSFET	Ext. MOSFET	SOIC-16L
MAP3524SIRH	Switch Mode	2	8.5 ~ 18	Ext. MOSFET	Ext. MOSFET	SOIC-20L

AC-DC Converter

Product Number	PFC Mode	Control Mode	Fsw Typ [kHz]	Vcc Max [V]	Drive Cap. [mA]	Package
MAP8802SIRH	CRM	Voltage Mode	Variable	20	500 / 800	SOIC-8L

Power IC

LED Lighting Driver

Product Number	Topology	Key Feature	Input Voltage [Vac]	Input Power [W]	LED Current Accuracy [%]	Package
MAP9000QNRH	AC Direct Drive	Flicker-free	90 ~ 270	16	±6.0	QFN-12L
MAP9001ESRH	AC Direct Drive	Flicker-free	90 ~ 270	12	±6.0	ESOP-16L
MAP9002ESRH	AC Direct Drive	Line regulation	90 ~ 270	8	±6.0	ESOP-8L
MAP9003SIRH	AC Direct Drive	Line regulation	90 ~ 270	4	±6.0	SOIC-8L
MAP9004ESRH	AC Direct Drive	Single channel	90 ~ 270	8	±6.0	ESOP-8L
MAP9004DFRH	AC Direct Drive	Single channel	90 ~ 270	8	±6.0	DFN33-4L

DC-DC Converter

Product Number	# of Output	Topology	Input Voltage [V]	Output Current [A]	Switching Freq.	Package
MAP7154WCRH	Dynamic Output Voltage	Synchronous	2.7 ~ 5.5	0.8	6MHz	WLCSP-9B
MAP7160DFRH	600mA Buck Converter	Synchronous	2.7 ~ 5.5	0.6	2MHz	DFN-6L

Analog Switch

Product Number	Topology	Supply Voltage [V]		Ron[Ω]	Con[pF]	Package
		Min	Max			
MSI2001QH/MH	DPDT	3.0	4.3	<4.0(Typ.)	<7.0	QFN-10L MSOP-10L
MSI2021QH	Dual SPDT	1.65	4.3	<0.4	<120	QFN-10L

Load Switch

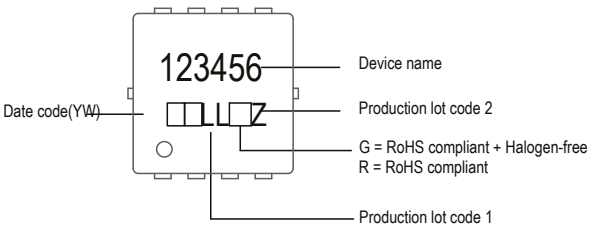
Product Number	Topology	Supply Voltage [V]		Ron[Ω]	IQ	Package
		Min	Max			
MSI2006WCRH	6A Load Switch	2.3	5.5	7 (Typ.)	1.0uA(Max.)	WLCSP-12B
MSI2206DFRH	6A Dual Load Switch	0.8	5.5	18 (Vbias=5V)	"80uA@2ch 60uA@1ch"	DFN-14L

Level Shifter

Product Number	Topology	V _{GH} Input Voltage Range [V]		V _{GL} Input Voltage Range [V]		Package
MSI6000QNRH	11-Ch. Level Shifter	5.0	37.5	-15	-5	TQFN-24L
MSI6001WCRH	16-Ch. Level Shifter	5.0	9.0	-19	-7	WLCSP-28B

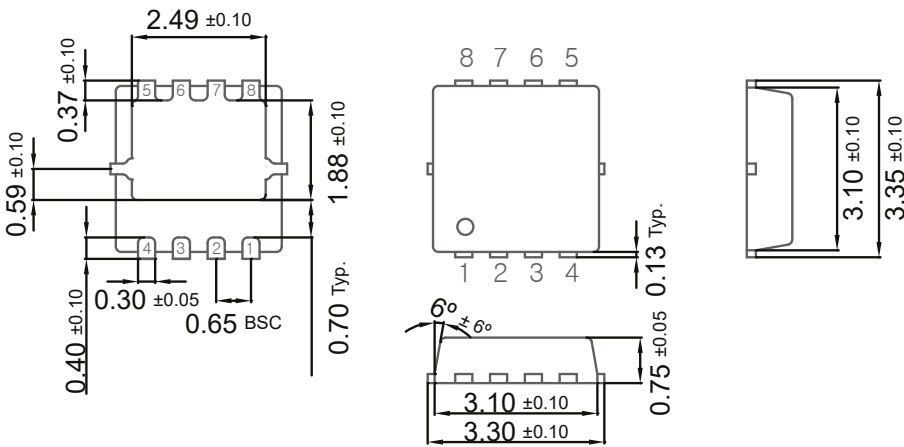
Package information

PDFN33

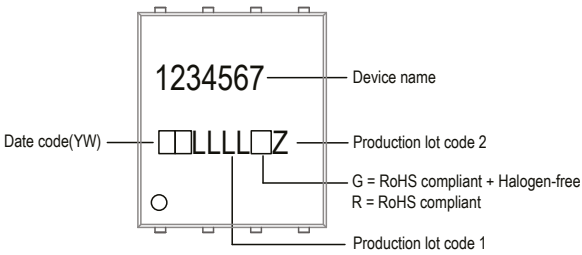


Marking layout

Package outline

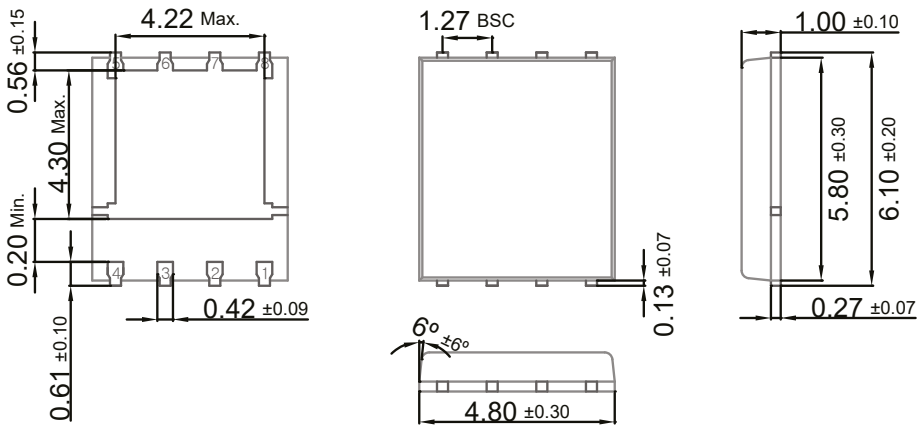


PDFN56

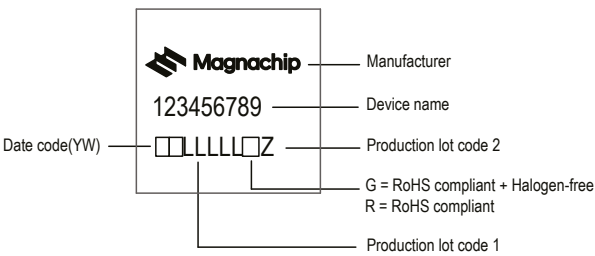


Marking layout

Package outline

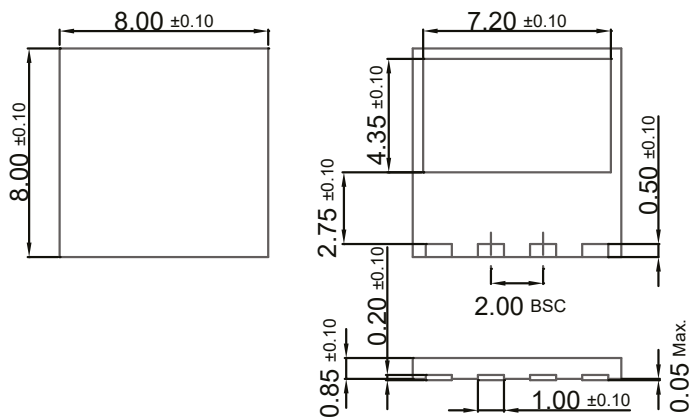


PDFN88

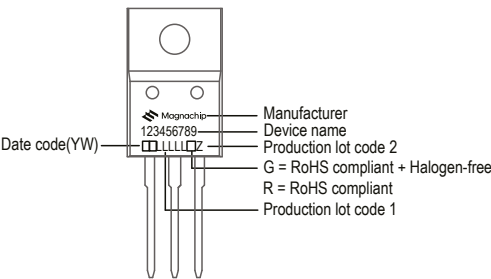


Marking layout

Package outline

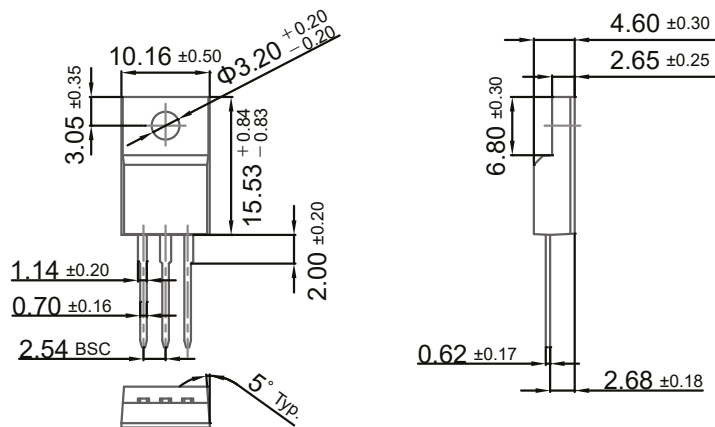


TO-220FT



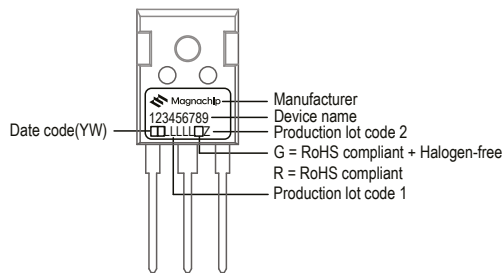
Marking layout

Package outline



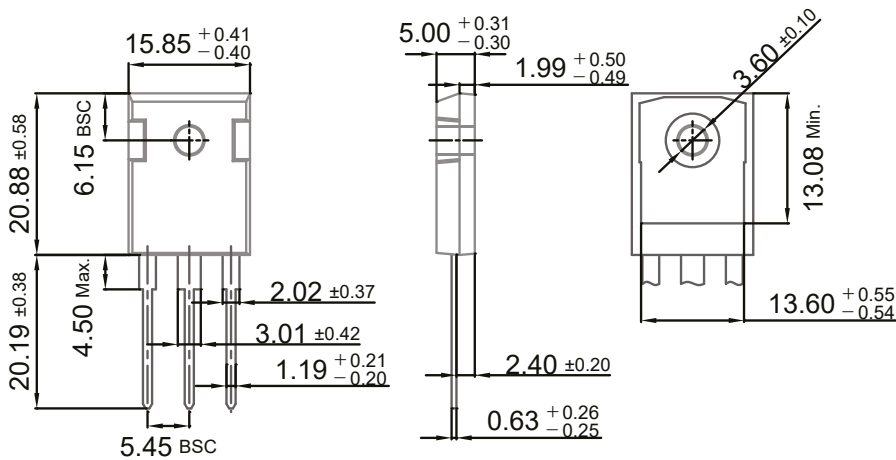
Package information

TO-247(DUAL)

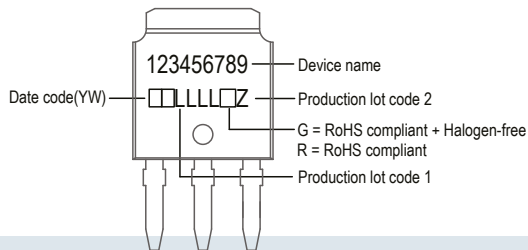


Marking layout

Package outline

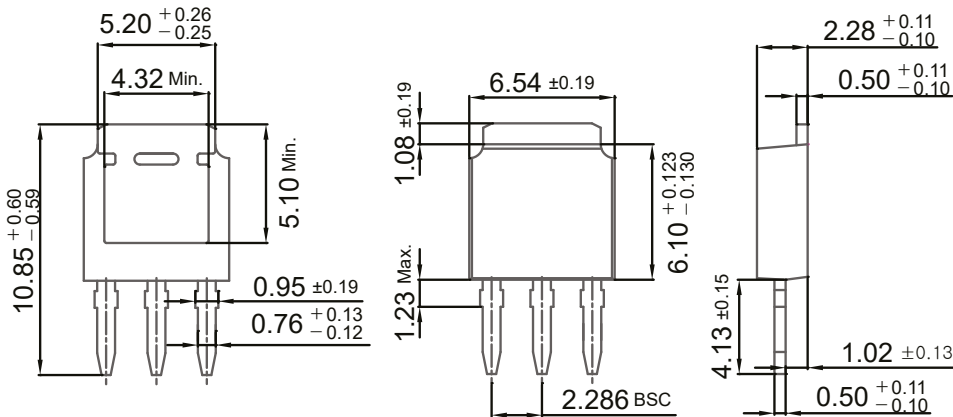


TO-251AVS

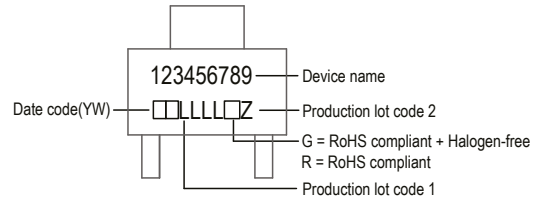


Marking layout

Package outline

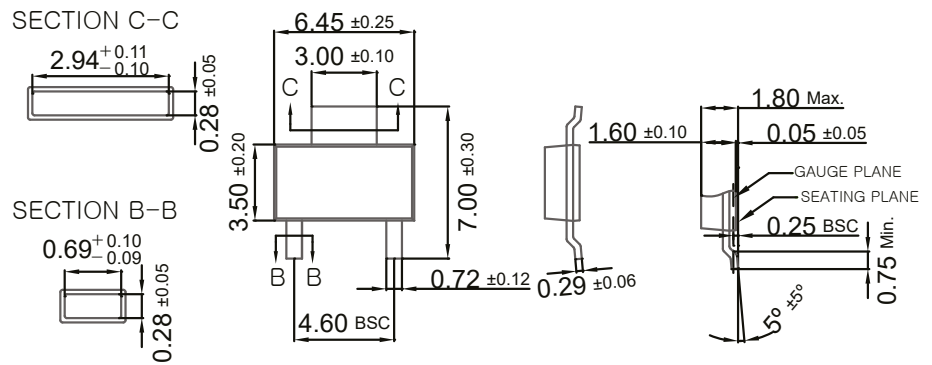


SOT-223-2L

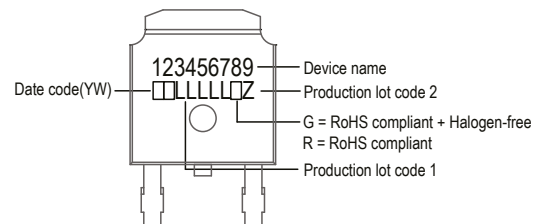


Marking layout

Package outline

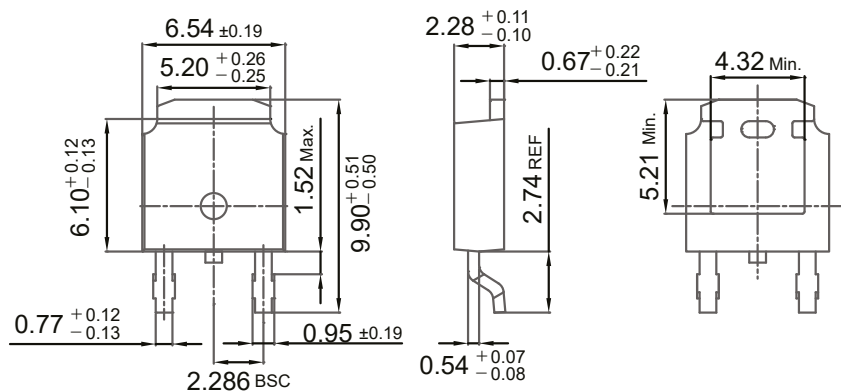


DPAK



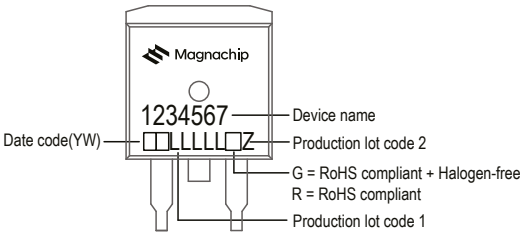
Marking layout

Package outline



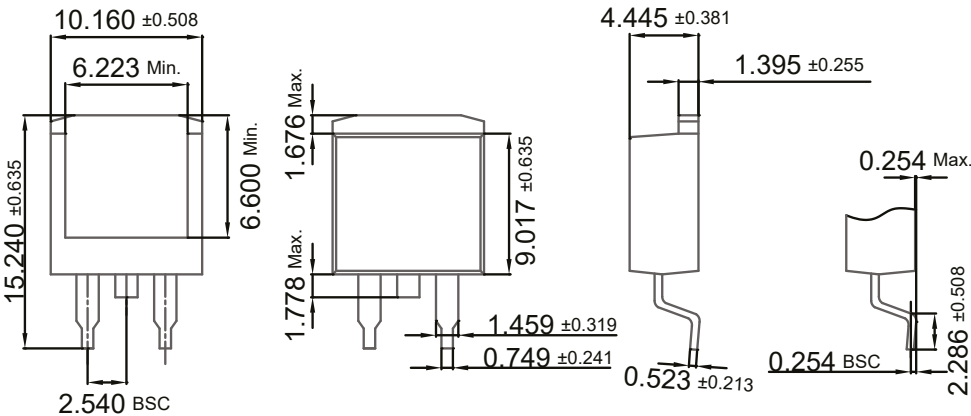
Package information

D²PAK

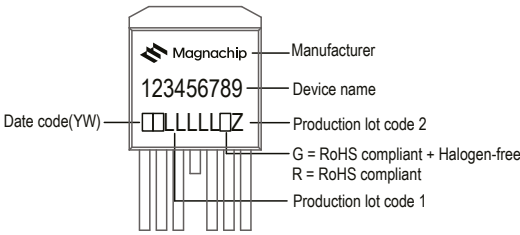


Marking layout

Package outline

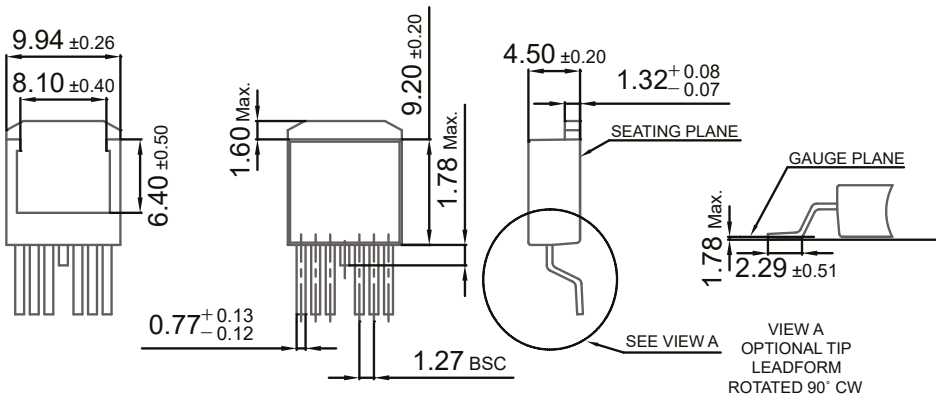


D²PAK-7L

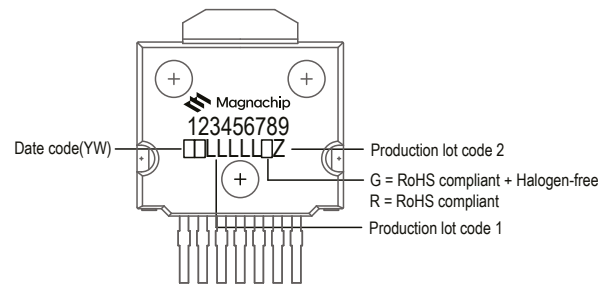


Marking layout

Package outline

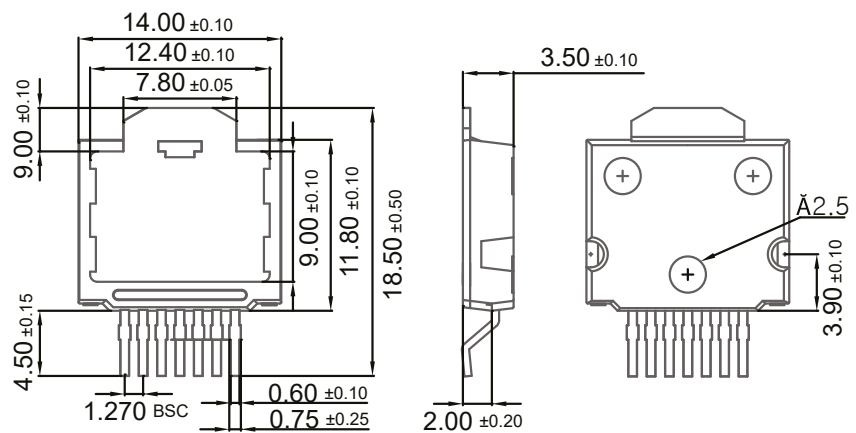


M2PAK-7P

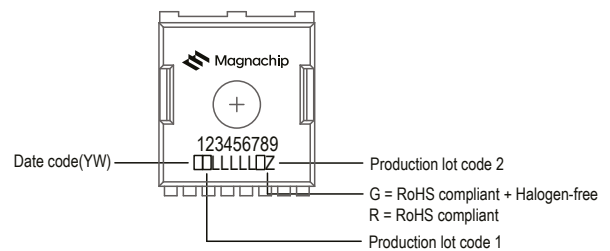


Marking layout

Package outline



TOLL



Marking layout

Package outline

