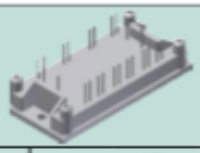
IGBT Modules – CBI Configuration

CBI 1

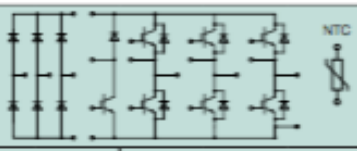
IGBT Modules



X111 E1-Pack

Outline drawings on pages O-31...O-52

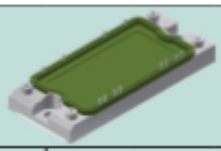
See data sheet for pin arrangement



Type	Rectifier 3~			Inverter 3~					Brake chopper		
	V_{RRM}	I_{DAVM} T_C = 80°C	R_{thJC} typ.	V_{CES}	I_C T_C = 25°C	I_C T_C = 80°C	$V_{CE(sat)}$ typ.	R_{thJC} typ.	V_{CES}	I_C T_C = 80°C	R_{thJC} typ.
○ Not for new design ➢ New	V	A	K/W	V	A	A	V	K/W	V	A	K/W
600 V NPT IGBT											
MUBW 10-06A6K	1600	61	2.10	600	12	8	2.5	2.80	600	8	2.80
MUBW 15-06A6K		65	1.90		19	14	2.4	1.70		8	2.80
MUBW 20-06A6K		65	1.90		25	17	2.0	1.50		8	2.80
○ MUBW 25-06A6K		65	1.90		31	21	2.1	1.25		14	1.70
MUBW 35-06A6K		89	1.40		42	29	2.3	0.95		17	1.50
1200 V NPT IGBT											
MUBW 15-12A6K	1600	89	1.40	1200	19	13	3.0	1.35	1200	13	1.35
MUBW 30-12A6K		89	1.40		30	21	3.0	0.95		13	1.35
1200 V Trench IGBT											
MUBW 45-12T6K	1600	104	1.10	1200	43	31	2.5	0.80	1200	13	1.35
1200 V XPT IGBT											
MIXA 10WB1200TML	1600	69	1.80	1200	17	12	1.8	2.00	1200	12	2.00
MIXA 20WB1200TML		105	1.10		28	20	1.8	1.26		12	2.00

CBI 2

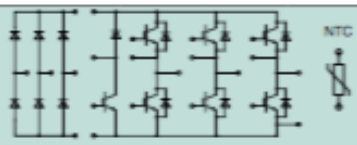
IGBT Modules



X112 E2-Pack

Outline drawings on pages O-30...O-55

See data sheet for pin arrangement

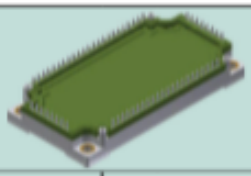


Type	Rectifier 3~			Inverter 3~					Brake chopper		
	V_{RRM}	I_{DAVM} T_C = 80°C	R_{thJC} typ.	V_{CES}	I_C T_C = 25°C	I_C T_C = 80°C	$V_{CE(sat)}$ typ.	R_{thJC} typ.	V_{CES}	I_C T_C = 80°C	R_{thJC} typ.
○ Not for new design ➢ New	V	A	K/W	V	A	A	V	K/W	V	A	K/W
600 V NPT IGBT											
○ MUBW 10-06A7	1600	18	1.5	600	20	15	1.9	1.5	600	15	1.5
○ MUBW 15-06A7		18	1.5		25	18	1.9	1.3		15	1.5
MUBW 20-06A7		24	1.3		35	25	1.9	1.0		18	1.4
MUBW 30-06A7		24	1.3		50	35	1.9	0.7		18	1.3
MUBW 50-06A7		29	1.1		75	50	1.9	0.5		25	1.0
600 V XPT IGBT											
➢ MIXA 50WB600TED	1200	119	1.2	600	64	43	1.6	0.8	600	20	1.26
1200 V NPT IGBT											
○ MUBW 10-12A7	1600	18	1.5	1200	20	15	2.3	1.2	1200	15	1.2
MUBW 15-12A7		24	1.3		35	25	2.0	0.7		15	1.2
MUBW 25-12A7		24	1.3		50	35	2.2	0.55		15	1.2
MUBW 35-12A7		29	1.1		50	35	2.5	0.55		25	0.7
1200 V Trench IGBT											
○ MUBW 15-12T7	1600	24	1.3	1200	25	15	1.7	1.2	1200	15	1.2
1200 V XPT IGBT											
MIXA 10WB1200TED	1600	105	1.1	1200	17	12	1.8	2.0	1200	12	2.0
MIXA 20WB1200TED		105	1.1		28	20	1.8	1.26		12	2.0
MIXA 30WB1200TED		105	1.1		43	30	1.8	0.84		12	2.0
MIXA 40WB1200TED		105	1.1		50	40	1.8	0.64		20	1.26

IGBT Modules – CBI Configuration

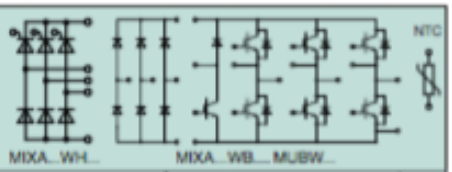
CBI 3

IGBT Modules



X113 E3-Pack

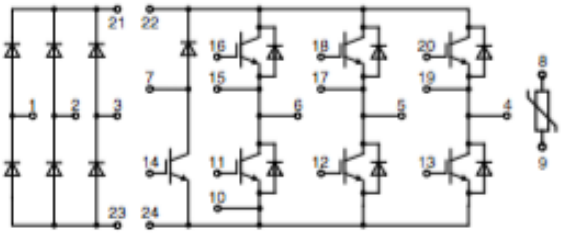
Outline drawings on pages O-31...O-52
See data sheet for pin arrangement



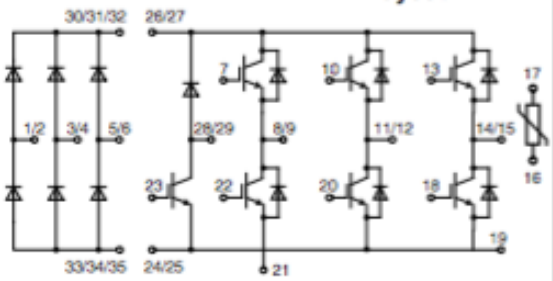
Type	Rectifier 3~			Inverter 3~					Brake chopper			Layout
	V_{RRM}	I_{DAVM} $T_H = 80°C$	R_{thJC} typ.	V_{CES}	I_C $T_C = 25°C$	I_C $T_C = 80°C$	$V_{CE(sat)}$ typ.	R_{thJC} typ.	V_{CES}	I_C $T_C = 80°C$	R_{thJC} typ.	
○ Not for new design ✧ under development	V	A	K/W	V	A	A	V	K/W	V	A	K/W	
600 V NPT IGBT												
○ MUBW 50-06A8	1600	40	1.10	600	75	50	1.9	0.50	600	25	1.00	A
MUBW 75-06A8		46	0.94		100	65	2.0	0.39		35	0.75	A
○ MUBW 100-06A8		60	0.73		125	85	1.9	0.30		50	0.55	A
1200 V NPT IGBT												
○ MUBW 35-12A8	1600	27	1.30	1200	50	35	2.5	0.55	1200	25	0.70	A
MUBW 50-12A8		46	0.94		85	60	2.2	0.35		35	0.55	A
1200 V Trench IGBT												
MUBW 50-12T8	1600	50	0.94	1200	75	50	1.7	0.45	1200	35	0.55	A
MUBW 75-12T8		50	0.94		105	75	1.7	0.35		35	0.55	A
1200 V XPT IGBT												
MIXA 60WB1200TEH	1600	190	0.65	1200	85	60	1.8	0.43	1200	40	0.64	A
MIXA 60WH1200TEH [1]		135	0.65		85	60	1.8	0.43		40	0.64	C
MIXA 80WB1200TEH		265	0.50		120	84	1.8	0.32		40	0.64	A
MIXA 81WB1200TEH		290	0.45		120	84	1.8	0.32		60	0.43	B
1200 V X2PT IGBT												
✧ MIXG 85WB1200TEH	1600	290	0.45	1200	140	85	1.7		1200	60	0.43	B
1700 V Trench IGBT												
MUBW 50-17T8	2200	120	1.10	1700	74	53	2.0	0.43	1700	34	0.62	A
MUBW 75-17T8		140	0.95		113	80	2.0	0.48		34	0.62	A

[1] input rectifier half-controlled

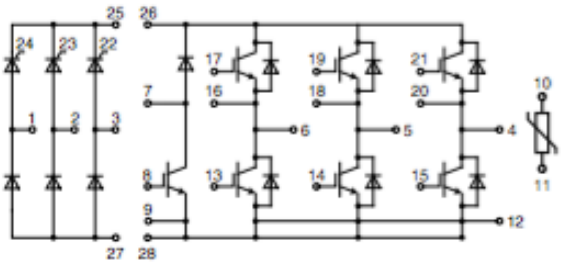
Layout A



Layout B



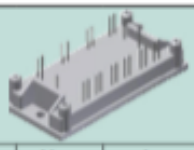
Layout C



IGBT Modules – Six-Pack configuration

Six-Pack

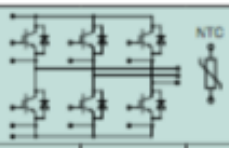
IGBT Modules



X111 E1-Pack

Outline drawings on pages O-31...O-52

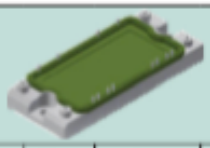
See data sheet for pin arrangement



Type ○ Not for new design ➢ New	V_{CES} V	I_{C25} IGBT $T_C = 25°C$ A	I_{C80} IGBT $T_C = 80°C$ A	$V_{CE(sat)\ typ}$ IGBT $T_J = 25°C$ V	E_{off} IGBT $T_J = 125°C$ mJ	R_{thJC} IGBT K/W	I_{F25} Diode $T_C = 25°C$ A	I_{F80} Diode $T_C = 80°C$ A	NTC
1200 V Trench IGBT									
MWI 60-12T6K		58	41	1.9	4.8	0.62	49	32	•
MWI 80-12T6K		80	56	2.0	6.5	0.46	80	51	•
1200 V XPT IGBT									
○ MIXA 10W1200TML	1200	17	12	1.8	1.1	2.00	19	13	•
○ MIXA 20W1200TML		28	20	1.8	1.7	1.26	33	22	•
○ MIXA 30W1200TML		43	30	1.8	3.0	0.84	44	29	•
○ MIXA 40W1200TML		60	40	1.8	4.1	0.64	44	29	•

Six-Pack

IGBT Modules



X112 E2-Pack

Outline drawings on pages O-30...O-55

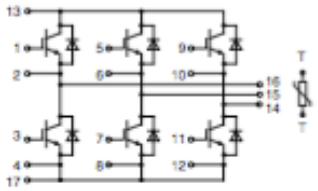
See data sheet for pin arrangement

Type ✧ under development ○ Not for new design ➢ New	V_{CES} V	I_{C25} IGBT $T_C = 25°C$ A	I_{C80} IGBT $T_C = 80°C$ A	$V_{CE(sat)\ typ}$ IGBT $T_J = 25°C$ V	E_{off} IGBT $T_J = 125°C$ mJ	R_{thJC} IGBT K/W	I_{F25} Diode $T_C = 25°C$ A	I_{F80} Diode $T_C = 80°C$ A	NTC	Layout
600 V NPT IGBT										
○ MWI 30-06A7	600	45	30	1.9	1.0	0.88	36	24		A
MWI 30-06A7T		45	30	1.9	1.0	0.88	36	24	•	A
○ MWI 50-06A7		75	50	1.9	1.7	0.55	72	45		A
○ MWI 50-06A7T		75	50	1.9	1.7	0.55	72	45	•	A
○ MWI 75-06A7		90	60	2.1	2.5	0.44	140	85		A
MWI 75-06A7T		90	60	2.1	2.5	0.44	140	85	•	A
650 V XPT IGBT										
➢ MIXA 50W650TED	650	*	50	1.5	1.2 (150°C)	*	*	*	•	B
➢ MIXA 75W650TED		*	75	1.5	1.7 (150°C)	*	*	*	•	B
1200 V NPT IGBT										
○ MWI 15-12A7	1200	30	20	1.0	1.8	0.88	25	17		A
○ MWI 25-12A7		50	35	2.2	2.8	0.55	50	33		A
○ MWI 25-12A7T		50	35	2.2	2.8	0.55	50	33	•	A
○ MWI 50-12A7		85	60	2.2	5.6	0.35	110	70		A
○ MWI 50-12A7T		85	60	2.2	5.6	0.35	110	70	•	A
1200 V Trench IGBT										
MWI 35-12T7T	1200	60	35	1.7	4.1	0.62	50	33	•	B
MWI 50-12T7T		75	50	1.7	6.5	0.49	110	70	•	B
MWI 75-12T7T		105	75	1.7	9.5	0.35	150	100	•	B
1200 V XPT IGBT										
MIXA 30W1200TED	1200	43	30	1.8	3.0	0.84	44	29	•	B
MIXA 40W1200TED		60	40	1.8	4.1	0.64	44	29	•	B
MIXA 60W1200TED		85	60	1.8	5.5	0.43	88	59	•	B
MIXA 80W1200TED		120	84	1.8	8.3	0.32	135	90	•	B
1200 V X2PT IGBT										
✧ MIXG 85W1200TED	1200	140	85	1.7	7.7		135	90	•	B

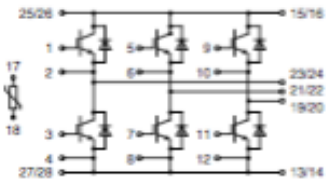
* in progress

(NTC option on some types)

Layout A



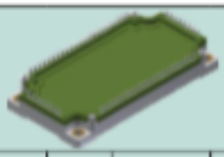
Layout B



IGBT Modules – Six-Pack configuration

Six-Pack

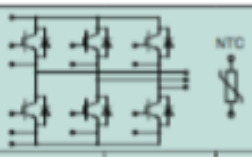
IGBT Modules



X113 E3-Pack

Outline drawings on pages O-31...O-52

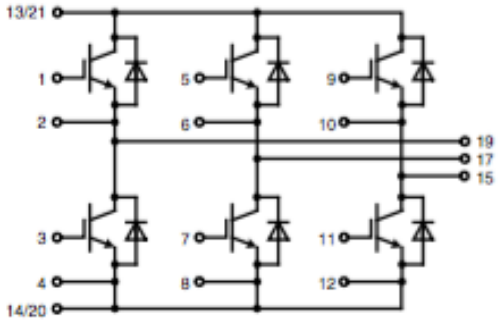
See data sheet for pin arrangement



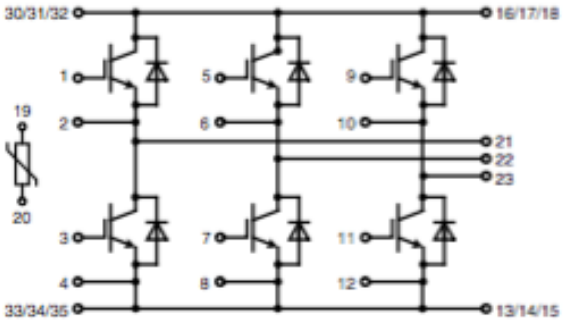
Type ✧ under development ○ Not for new design ➢ New	V_{CES} V	I_{C25} IGBT $T_C = 25°C$ A	I_{C80} IGBT $T_C = 80°C$ A	$V_{CE(sat)\ typ}$ IGBT $T_J = 25°C$ V	E_{off} IGBT $T_J = 125°C$ mJ	R_{thJC} IGBT K/W	I_{F25} Diode $T_C = 25°C$ A	I_{F80} Diode $T_C = 80°C$ A	NTC	Layout
600 V NPT IGBT										
MWI 100-06A8	600	130	88	2.0	2.9	0.30	140	88		A
MWI 150-06A8		170	115	2.0	4.6	0.24	210	130		A
○ MWI 200-06A8		215	155	2.0	6.3	0.18	260	165		A
650 V XPT TRENCH IGBT										
✧ MIXD 200W650TEH	650	*	200	1.6	7.5 (150°C)	*	*	*	•	B
1200 V NPT IGBT										
○ MWI 75-12A8	1200	125	85	2.2	10.5	0.25	150	100		A
○ MWI 100-12A8		160	110	2.2	14.6	0.19	200	130		A
1200 V SPT+ IGBT										
MIEB 100W1200DPFTEH		183	128	1.8	9.7	0.20	135	90	•	B
MIEB 101W1200EH		183	128	1.8	9.7	0.20	135	90		A
MIEB 101W1200DPFEH		183	128	1.8	9.7	0.20	135	90		A
1200 V Trench IGBT										
○ MWI 75-12T8T	1200	100	75	1.7	9.5	0.35	150	100	•	B
○ MWI 150-12T8T		200	150	1.7	17.0	0.18	196	132	•	B
1200 V XPT IGBT										
MIXA 80W1200TEH	1200	120	84	1.8	8.3	0.32	135	90	•	B
MIXA 100W1200TEH		155	108	1.8	11.0	0.25	135	90	•	B
MIXA 150W1200TEH		220	150	1.8	16.0	0.18	190	130	•	B
1200 V X2PT										
✧ MIXG 120W1200TEH	1200	170	120	1.7	8.5		135	90	•	B
✧ MIXG 180W1200TEH		230	170	1.7	12.0		230	145	•	B

* in progress

Layout A



Layout B



IGBT Modules in MiniPack2B package

MiniPack2B
with PressFIT Pins

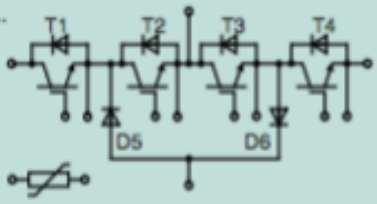
X109 MiniPack2B

Outline drawings on pages O-31...O-52

See data sheet for pin arrangement

Multi Level Configuration

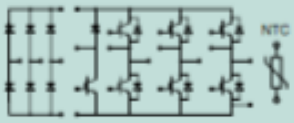
...PM...



Type		IGBTs T1 &T4				IGBTs T2 & T3				Diodes D5 & D6			
	V_{RRM}	I_C T_C = 25°C	I_C T_C = 80°C	$V_{CE(sat)}$ typ.	R_{thJC} typ.	I_C T_C = 25°C	I_C T_C = 80°C	$V_{CE(sat)}$ typ.	R_{thJC} typ.	I_D T_C = 25°C	I_D T_C = 80°C	V_F typ.	R_{thJC} typ.
✧ under development ➢ New	V	A	A	V	K/W	A	A	V	K/W	A	A	V	K/W
MIXA 50PM650TMI	650	75	50	1.6	0.80	75	50	1.6	0.80	55	40	1.8	1.2
MIXA 100PM650TMI		150	100	1.6	0.35	150	100	1.6	0.35	130	100	1.8	0.6
✧ MIXD 80PM650TMI		108	82	1.5	0.55	147	110	1.5	0.40	114	83	1.7	0.6

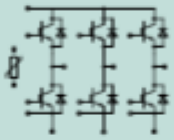
CBI Configuration

...WB...



Type	Rectifier 3~			Inverter 3~					Brake chopper		
	V_{RRM}	I_{DAVM} T_C = 80°C	R_{thJC} typ.	V_{CES}	I_C T_C = 25°C	I_C T_C = 80°C	$V_{CE(sat)}$ typ.	R_{thJC} typ.	V_{CES}	I_C T_C = 80°C	R_{thJC} typ.
	V	A	K/W	V	A	A	V	K/W	V	A	K/W
MIXA 20WB1200TMI	1600	105	1.5	1200	28	20	1.8	1.26	1200	12	2.00
MIXA 30WB1200TMI		105	1.1	1200	43	30	1.8	0.84	1200	20	1.26

Six-Pack Configuration

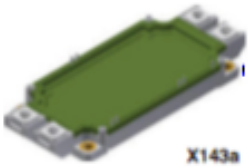


Type	V_{CES}	I_{C25} IGBT T_C = 25°C	I_{C80} IGBT T_C = 80°C	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C	E_{off} IGBT T_J = 125°C	R_{thJC} IGBT	I_{F25} Diode T_C = 25°C	I_{F80} Diode T_C = 80°C	NTC
✧ under development	V	A	A	V	mJ	K/W	A	A	
✧ MIXA 40W1200TMI	1200	60	40	1.8	4.1	0.64	44	29	•
✧ MIXA 60W1200TMI		85	60	1.8	5.5	0.43	88	59	•

IGBT XPT™ Modules in SimBus F package

- space savings
- reduced protection circuits
- package designed for wave soldering

Package style
Outline drawings
on pages
O-31...O-52



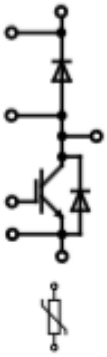
X143a

Type ➢ New ✧ under development	V_{CES} V	I_{C80} IGBT T_C = 80°C A	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C V	E_{on} IGBT T_J = 125°C mJ	E_{off} IGBT T_J = 125°C mJ	R_{thJC} IGBT K/W	I_{FAC} Diode T_C = 80°C A	R_{thJC} Diode K/W	Fig. No.
Phase-Leg									
MIXA 600PF650TSF	650	490	1.65	6	23	0.085	340	0.095	X143a
MIXA 225PF1200TSF	1200	250	1.80	20	27	0.115	185	0.145	
MIXA 300PF1200TSF		325	1.80	20	42	0.085	185	0.145	
➢ **MIXG 330PF1200TSF**		330	1.70	*	30	*	265	0.095	
MIXA 450PF1200TSF		450	1.80	22	68	0.060	265	0.095	
➢ **MIXG 490PF1200TSF**		490	1.70	*	45	*	265	0.095	
✧ **MIXG 300PF1700TSF**	1700	425	300	*	*	*	*	*	
✧ **MIXG 450PF1700TSF**		635	450	*	*	*	*	*	
Brake / Boost									
MIXA 225RF1200TSF	1200	250	1.80	20	27	0.115	185	0.145	
Common Emitter									
✧ **MIXA 600AF650TSF**	650	490	1.65	6	23	0.085	340	0.095	
Common Collector									
✧ **MIXA 600CF650TSF**	650	490	1.65	6	23	0.085	340	0.095	
Multi Level (one half)									
✧ **MIXA 430LD1200TSF** [1]	1200	430	1.80	34	44	0.064	265	0.110	
	650	345	1.65	6.5	15	0.100	200	0.145	

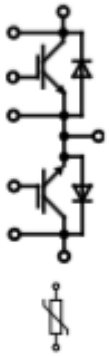
* in progress [1] two MIXA 430DL1200TSF build a T-type (NPC2 type) multi level circuit

...PF...
phase-leg

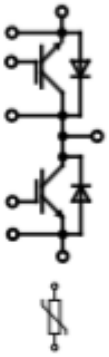
...RF...
brake / boost



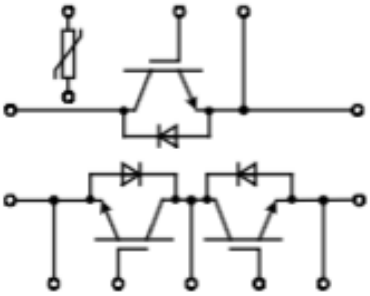
...AF...
common emitter



...CF...
common collector



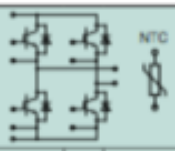
...LD...
multi level (one half)



IGBT Full Bridge and SOLAR Inverter Modules

Full Bridge

IGBT Modules



Type ○ Not for new design ➢ New	Technology	V_{CES} V	I_{C25} IGBT $T_C = 25°C$ A	I_{C80} IGBT $T_C = 80°C$ A	$V_{CE(sat)\ typ}$ IGBT $T_J = 25°C$ V	E_{off} IGBT $T_J = 125°C$ mJ	I_{FAV} Diode $T_C = 80°C$ A	NTC	Fig. No.
○ MKI 80-06T6K	Trench	600	89	67	1.8	2.8	67	•	X111
○ MKI 50-06A7	NPT	600	72	50	1.9	1.7	45		X112
○ MKI 50-06A7T			72	50	1.9	1.7	45	•	
○ MKI 65-06A7T			100	67	2.0	2.3	85	•	
○ MKI 75-06A7			90	60	2.5	6.3	85		
MKI 75-06A7T			90	60	2.5	6.3	85	•	
○ MKI 50-12F7	Fast NPT	1200	65	45	3.2	2.5	70		
MKI 100-12F8			65	45	3.2	2.5	70		X113
MIXA 61H1200ED	XPT	1200	85	60	1.8	5.5	59		X112
MIXA 81H1200EH			120	84	1.8	8.3	90		X113
○ MIEB 101H1200EH			183	128	1.8	9.7	90		
➢ MITA 150H1700TEH	Trench	1700	210	145	2.0	47	120	•	

SOLAR Inverter Modules

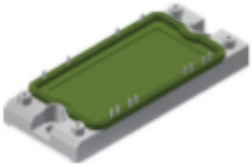
Fast XPT IGBT
Full Bridge & Boost Stage & Bypass Diode

Type ➢ New	Technology	V_{CES} V	I_{C25} IGBT $T_C = 25°C$ A	I_{C80} IGBT $T_C = 80°C$ A	$V_{CE(sat)\ typ}$ IGBT $T_J = 25°C$ V	E_{on} IGBT $T_J = 150°C$ mJ	E_{off} IGBT $T_J = 150°C$ mJ	I_{FAV} Diode $T_C = 80°C$ A	Fig. No.
MIXB 52HR600ED	fast XPT & SONIC	600	78	52	1.8	1.38	0.8	29	X112
MIXB 52HR600DCGED	fast XPT & SiC		78	52	1.8	0.67	0.8	20	

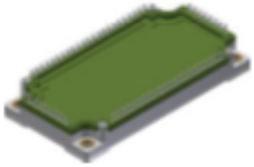
Outline drawings on pages O-31...O-52

X111 E1-Pack

X112 E2-Pack



X113 E3-Pack



IGBT Modules

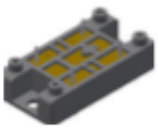
NPT / XPT / X2PT

IGBT Modules

Type ○ Not for new design ◇ under development	V_{CES} V	I_{C25} IGBT $T_C = 25°C$ A	I_{C80} IGBT $T_C = 80°C$ A	$V_{CE(sat)}$ typ IGBT $T_J = 25°C$ V	E_{off} IGBT $T_J = 125°C$ mJ	R_{thJC} IGBT K/W	I_{F25} Diode $T_C = 25°C$ A	I_{F80} Diode $T_C = 80°C$ A	Fig. No.
Half Bridge. XPT. X2PT									
◇ MIXA 100PF650YI	650	144	107	1.6	(150°C) 3.7	0.40	91	67	X127a
◇ MIXG 200PF1200YI	1200	280	210	1.7	(150°C) 17	0.16	230	165	
◇ MIXA 300PF1200TLP		440	310	1.75	32	0.09	340	250	X128a
◇ MIXG 450PF1200TLP		820	620	1.7	(150°C) 50	0.055	680	500	
◇ MIXG 300PF1700TLP	1700	420	330	1.95	85	0.06	340	260	
1200 V Half Bridge. NPT									
MII 75-12A3	1200	90	60	2.2	5.6	0.33	100	60	X127a
MII 100-12A3		135	90	2.2	10.5	0.22	150	100	
MII 145-12A3		160	110	2.2	15.0	0.18	150	100	
MII 150-12A4		180	120	2.2	11.5	0.17	200	130	X128a
MII 200-12A4		270	180	2.2	21.0	0.11	300	200	
MII 300-12A4		330	220	2.2	29.0	0.09	450	270	
1200 V Boost Chopper. NPT									
MID 75-12A3	1200	90	60	2.2	5.6	0.33	100	60	X127b
MID 100-12A3		135	90	2.2	10.5	0.22	150	100	
MID 145-12A3		160	110	2.2	15.0	0.18	150	100	
○ MID 150-12A4		180	120	2.2	11.5	0.17	200	130	X128b
MID 200-12A4		270	180	2.2	21.0	0.11	300	200	
MID 300-12A4		330	220	2.2	29.0	0.09	450	270	
MID 550-12A4		670	460	2.3	59.0	0.05	750	460	
1200 V XPT IGBT Brake / Boost Chopper									
MIXA 80R1200VA	1200	120	84	1.9	8.3	0.32	135	90	X103
MIXA 150R1200VA		220	150	1.8	16	0.18	190	130	
1200 V Buck Chopper. NPT									
MDI 75-12A3	1200	90	60	2.2	5.6	0.33	100	60	X127c
MDI 100-12A3		135	90	2.2	10.5	0.22	150	100	
MDI 145-12A3		160	110	2.2	15.0	0.18	150	100	
○ MDI 150-12A4		180	120	2.2	11.5	0.17	200	130	X128c
MDI 200-12A4		270	180	2.2	21.0	0.11	300	200	
MDI 300-12A4		330	220	2.2	29.0	0.09	450	270	
MDI 550-12A4		670	460	2.3	59.0	0.05	750	460	
1200 V XPT IGBT Buck Chopper									
MIXA 150Q1200VA	1200	220	150	1.8	16	0.18	190	130	X103
1200 V XPT IGBT Buck / Boost switched reluctance Chopper									
MIXA 60HU1200VA	1200	85	60	1.8	5.5	0.43	88	59	X103

Outline drawings on pages O-31...O-52

X103 V1-Pack



X128a/b/c 62mm width

X127a/b/c 34mm width

High Voltage ISO247 package

- ✓ 3000V isolation
- ✓ Excellent thermal performance
- ✓ 100% mechanical fit to TO-247

Diode ➢ New	Technology	Configuration	V_{RRM} V	I_{DAV} / I_{FAV} A	@ T_C °C	Package style Outline drawings on pages O-31...O-54
DSA 90C200HR	Schottky Diode	Common Cathode	200	2x 45	145	
DPF 30P600HR	HiPerFRED	Phase Leg	2x 600	30	130	
➢ DMA 50P1200HR	Standard		2x 1200	50	105	
➢ DMA 30P1600HR			2x 1600	30	105	
✧ DCG 10P1200HR	SiC Schottky Diode	Phase Leg	2x 1200	10	80	
✧ DCG 17P1200HR				17	80	
✧ DCG 20C1200HR		Common Cathode	1200	2x 10	80	
✧ DCG 35C1200HR				2x 17	80	
Thyristor						
➢ CLA 40E1200HR	High Efficiency	Single	1200	40	95	
➢ CMA 40E1600HR	Standard		1600	40	90	
Triac						
➢ CLA 40MT1200NHR	High Efficiency	Triac	1200	20	110	
CLA 60MT1200NHR				30	100	
➢ CLA 80MT1200NHR				40	100	
➢ CMA 60MT1600NHR	Standard		1600	30	90	X016c ISO247™
➢ CMA 80MT1600NHR				40	95	

IGBT ➢ New	Technology	Config.	V_{CES} / V_{DSS} V	I_{C25} / I_{D25} A	V_{CEsat} typ. V	R_{DSon} max. Ω
IXYJ 20N120C3D1	Gen X3 XPT IGBT	Copack	1200	21	3.4	-
➢ IXYJ 30N120C3D1				32	3.3	-
✧ IXA 20IF1200HR	XPT™ IGBT			33	1.8	-
✧ IXA 30IF1200HR				48	1.8	-
✧ IXA 40IF1200HR				63	1.8	-
➢ ITF 48IF1200HR	Fast Trench IGBT			72	2.4	-
MOSFET						
➢ IXFJ 80N25X3	X3-Class HiPerFET™	Single	250	44	-	0.018
IXFJ 26N50P3	Polar3™ HiperFET™		500	14	-	0.265
➢ MKH 24I650HR	Superjunction [1] CFD		650	25	-	0.08
➢ IXFJ 20N85X	X-Class HiPerFET™		850	9.5	-	0.360
➢ IXTJ 3N150	High Voltage MOSFET		1500	2.3	-	8.0
➢ IXTJ 4N150				2.5	-	6.0
➢ IXTJ 6N150				3.0	-	3.85

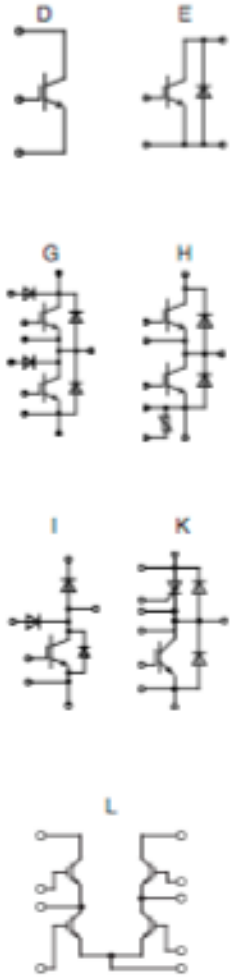
[1] Powered by Infineon CoolMOS™ superjunction bare die C6

ISOPLUS-SMPD™

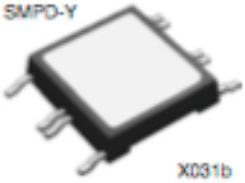
IGBTs

Type ➢ New ✧ under development	Circuit Diagram No. / Technology	V_{CES} V	I_{C25} T_C = 25°C A	$V_{CE(sat)}$ typ. T_C = 25°C V	E_{off} typ. T_J = 150°C (125°C) mJ	Fig. No.
SINGLE and COPACK						
MMIX 1X200N60B3	D XPT	600	223	1.40	3.45	X031a
MMIX 1X100N60B3H1	E XPT & SONIC		145	1.50	2.80	
MMIX 1X200N60B3H1	E XPT & SONIC		175	1.40	3.45	
➢ MMIX 1X340N65B4	D XPT™ IGBT GenX4™		450	1.40	2.54	X031a
MMIX 1Y82N120C3H1	E XPT fast & SONIC	1200	78	2.90	(3.70)	
MMIX 1Y100N120C3H1	E XPT fast & SONIC		92	2.90	3.55	
✧ IXG 70IF1200LB	E X2PT & SONIC2		105	1.9 (70A)	5.3 (50A)	X030a
✧ IXG 90IF1200LB	E X2PT & SONIC2		136	1.9 (90A)	8.5 (50A)	
MMIX 1G120N120A3V1	E GenX3 IGBT @ SONIC		110	1.85	58	X031a
MMIX 1G75N250	D IGBT for cap discharge	2500	110	2.50	-	
➢ MMIX 1B15N300C	E BiMOSFET™	3000	37	4.70	-	
➢ MMIX 1B20N300C	E BiMOSFET™		50	4.50	-	
BOOST						
IXA 20RG1200DHGLB	I XPT & SONIC	1200	32	1.80	1.7	X030a
IXA 30RG1200DHGLB	I XPT & SONIC		43	1.90	3.0	
IXA 40RG1200DHGLB	I XPT & SONIC		63	1.85	4.1	
PHASE-LEG						
IXA 20PG1200DHGLB	G XPT & SONIC	1200	32	1.80	1.7	X030a
IXA 30PG1200DHGLB	G XPT & SONIC		43	1.90	3.0	
IXA 40PG1200DHGLB	G XPT & SONIC		63	1.85	4.1	
✧ ITF 40PF1200DHGTLB	H Trench IGBT & SONIC & NTC		56	2.05	2.6	
✧ ITF 40PG1200DHGLB	G Trench IGBT & SONIC		56	2.05	2.6	
➢ IXA 20PT1200LB	K XPT & Thyhristor		28	1.80	1.7	
FULL-BRIDGE						
MMIX 4G20N250	L IGBT for cap discharge	2500	23	3.1 max	-	X031b
➢ MMIX 4B22N300	L BiMOS	3000	38	2.2	-	

Circuit Diagram



SMPD-Y



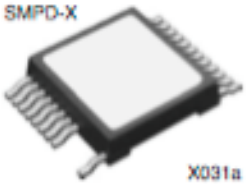
X031b

Outline drawings on pages O-31...O-54

SMPD-B

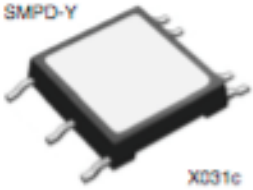
X030a

SMPD-X



X031a

SMPD-Y



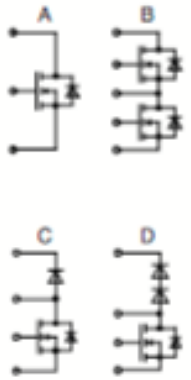
X031c

ISOPLUS™ i4-PAC™

MOSFETs

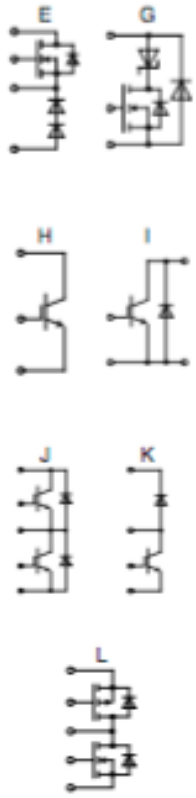
Type ○ Not for new design ➢ New	Configu-ration	Circuit diagram / Technology	V_{DSS} V	I_{D25} T_C = 25°C A	$I_{D90/110}$ T_C = 90°C (110°C) A	$R_{DS(on)}$ T_C = 25°C typ. mΩ (Ω)	Fig. No.
IXTF 200N10T	single	A Trench MOSFET	100	90	na	70	X024d
IXKF 40N60SCD1		G MOSFET ① & serial Schottky & HiPerFRED free wheeling Diode	600	41	29	60	X024a
IXTF 6N200P3		A Polar3™ High Voltage MOSFET	2000	4.0	(2.3)	max. (4.2)	X024c
IXTF 2N300P3		A Polar3™ High Voltage MOSFET	3000	1.6	(0.9)	max. (21)	
IXTF 1N250		A High Voltage MOSFET	2500	1.0	na	(40)	
IXTF 02N450		A High Voltage MOSFET	4500	0.2	na	(750)	
IXTF 1N450		A High Voltage MOSFET		0.9	na	(85)	
○ FDM 47-06KC5	buck	E MOSFET ② & HiPerDynFRED	600	47	32	40	X024a
FMD 21-05QC	boost	E HiPerFET & HiPerDynFRED	500	21	15	180	
FMD 15-06KC5		D MOSFET ② & HiPerDynFRED	600	15	11	150	
FMD 40-06KC		D MOSFET ② & HiPerDynFRED		38	25	60	
FMD 47-06KC5		D MOSFET ② & HiPerDynFRED		47	32	40	
FMM 75-01F	phase leg	B HiPerFET	100	75	55	25	

Circuit Diagram



IGBTs / BiMOSFETs

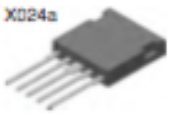
Type	Configu-ration	Circuit diagram / Technology	V_{CES} V	I_{C25} T_C = 25°C A	$I_{C90/110}$ T_C = 90°C (110°C) A	$V_{CE(sat)}$ typ. T_C = 25°C V	Fig. No.
IXBF 9N160G	single	I BiMOSFET	1600	7	4	4.9	X024c
○ IXBF 40N160		I BiMOSFET		28	16	6.2	
IXGF 32N170		H High voltage IGBT	1700	44	(19)	max. 3.5	
IXGF 20N250		H High voltage IGBT	2500	23	14	max. 3.1	
IXGF 25N250		H High voltage IGBT		30	15	max. 2.9	
IXLF 19N250A		H High voltage IGBT		32	19	max. 3.9	
IXGF 20N300		H High voltage IGBT	3000	22	(14)	max. 3.2	
IXGF 25N300		H High voltage IGBT		27	(16)	max. 3.0	
IXBF 14N300		I BiMOSFET		28	14	2.2	
IXGF 36N300		H High voltage IGBT		36	18	max. 2.7	
IXBF 22N300		I BiMOSFET		38	22	2.2	
IXBF 32N300		I BiMOSFET		40	22	2.8	
IXBF 28N300		I BiMOSFET		50	28	2.3	
IXBF 42N300		I BiMOSFET		60	(24)	2.5	
IXBF 55N300		I BiMOSFET		86	(34)	2.7	
IXBF 20N360		I BiMOSFET	3600	45	(18)	2.9	
IXBF 50N360		I BiMOSFET		92	(28)	2.4	
IXYF 30N450		A High voltage XPT™ IGBT	4500	23	(17)	3.2	
IXYF 40N450		A High voltage XPT™ IGBT		60	(32)	3.2	
FID 60-06D	boost	K NPT IGBT & HiPerFRED	600	65	40	1.6	X024a
○ FII 30-06D	phase leg	J NPT IGBT	600	30	18	1.9	
○ FII 40-06D		J NPT IGBT		40	25	1.8	



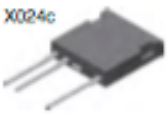
① Powered by Infineon CoolMOS™ superjunction bare die

Outline drawings on pages O-31...O-54

X024a



X024c



X024d