

AN5700

Part Numbering Nomenclature for IGBT & FRD Modules

Application Note

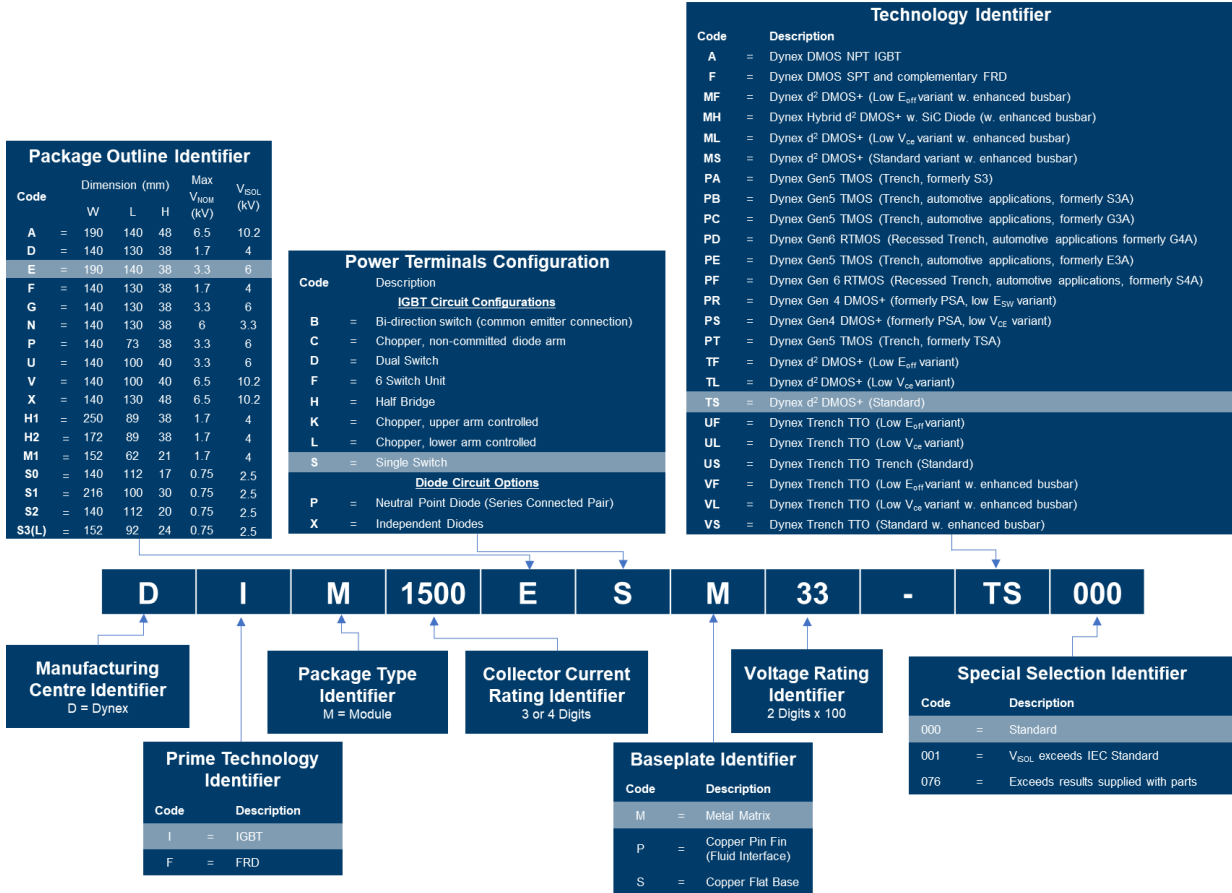
Replaces AN5700-3

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Introduction

Dynex IGBT modules come in a variety of blocking voltages, current capacity, circuit configuration dimensions and isolation voltages; this application note is intended to explain Dynex's module nomenclature regime.





IGBT & FRD Module Nomenclature

Example Model Number
DIM1000ASM65-US000

Manufacturing Centre Identifier

DIM1000ASM65-US000

Code	Description
D	= Dynex

Prime Technology Identifier

DIM1000ASM65-US000

Code	Description
I	= IGBT
F	= FRD

Collector Current Rating Identifier

DIM1000ASM65-US000

Collector current I_C rating may be three or four characters in length; i.e. a 500A module will read as a DIM500XSM65-TS000.

Package Outline IdentifierDIM1000ASM65-US000

Code		Dimension (mm)			Max V _{NOM} (kV)	V _{ISOL} (kV)
		W	L	H		
A	=	190	140	48	6.5	10.2
D	=	140	130	38	1.7	4
E	=	190	140	38	3.3	6
F	=	140	130	38	1.7	4
G	=	140	130	38	3.3	6
N	=	140	130	38	6	3.3
P	=	140	73	38	3.3	6
U	=	140	100	40	3.3	6
V	=	140	100	40	6.5	10.2
X	=	140	130	48	6.5	10.2
H1	=	250	89	38	1.7	4
H2	=	172	89	38	1.7	4
M1	=	152	62	21	1.7	4
S0	=	140	112	17	0.75	2.5
S1	=	216	100	30	0.75	2.5
S2	=	140	112	20	0.75	2.5
S3*	=	152	92	24	0.75	2.5

*Standard tab option use special selection 500, for Long tab option use special selection 502

Power Terminals Configuration IdentifierDIM1000ASM65-US000

Modules may be configured in the following options:

IGBT Circuit Configuration

Code	Configuration
B	= Bi-direction switch (common emitter connection)
D	= Dual Switch
C	= Chopper, non-committed diode arm
F	= 6 Switch Unit
K	= Chopper, upper arm controlled
L	= Chopper, lower arm controlled
S	= Single Switch
H	= Half Bridge

Diode Circuit Configuration

P	= Neutral Point Diode (Series Connected Pair)
X	= Independent Diodes

Baseplate Material Identifier

DIM1000ASM65-US000

Letter		Baseplate Material
M	=	Metal Matrix
P	=	Copper Pin Fin Base (Fluid interface)
S	=	Copper Flat Base

Voltage Rating Identifier

DIM1000ASM65-US000

Multiply two-digit voltage rating identifier by 100.

Technology Identifier

DIM1000ASM65-US000

Code		Description
A	=	Dynex DMOS NPT IGBT
F	=	Dynex DMOS SPT and complementary FRD
MF	=	Dynex d ² DMOS+ (Low E _{off} variant w. enhanced busbar)
MH	=	Dynex Hybrid d ² DMOS+ w. SiC Diode (w. enhanced busbar)
ML	=	Dynex d ² DMOS+ (Low V _{ce} variant w. enhanced busbar)
MS	=	Dynex d ² DMOS+ (Standard variant w. enhanced busbar)
PA	=	Dynex Gen5 TMOS (Trench, formerly S3)
PB	=	Dynex Gen5 TMOS (Trench, automotive applications, formerly S3A)
PC	=	Dynex Gen5 TMOS (Trench, automotive applications, formerly G3A)
PD	=	Dynex Gen6 RTMOS (Recessed Trench, automotive applications formerly G4A)
PE	=	Dynex Gen5 TMOS (Trench, automotive applications, formerly E3A)
PF	=	Dynex Gen 6 RTMOS (Trench, automotive applications, formerly S4A)
PR	=	Dynex Gen4 DMOS+ (formerly PSA012, low E _{sw} variant)
PS	=	Dynex Gen4 DMOS+ (formerly PSA011 low V _{CE} variant)
PT	=	Dynex Gen5 TMOS (Trench, formerly TSA)
TF	=	Dynex d ² DMOS+ (Low E _{off} variant)
TL	=	Dynex d ² DMOS+ (Low V _{ce} variant)
TS	=	Dynex d ² DMOS+ (Standard)
UF	=	Dynex Trench TSPT (Low E _{off} variant)
UL	=	Dynex Trench TSPT (Low V _{ce} variant)
US	=	Dynex Trench TSPT Trench (Standard)
VF	=	Dynex Trench TSPT (Low E _{off} variant w. enhanced busbar)
VL	=	Dynex Trench TSPT (Low V _{ce} variant w. enhanced busbar)
VS	=	Dynex Trench TSPT (Standard w. enhanced busbar)

Special Selection Identifier
DIM1000ASM65-US000


Code	Description
000	= Standard Product
001	= Isolation voltage exceeds IEC standard for blocking voltage
076	= Electrical result supplied with module.
XXX	= Special Selection

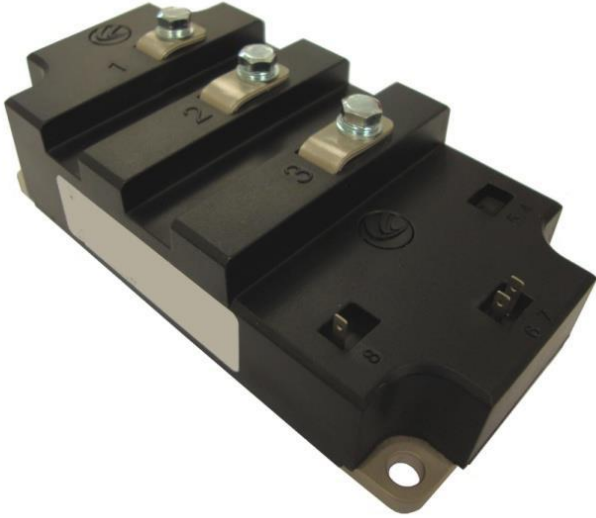
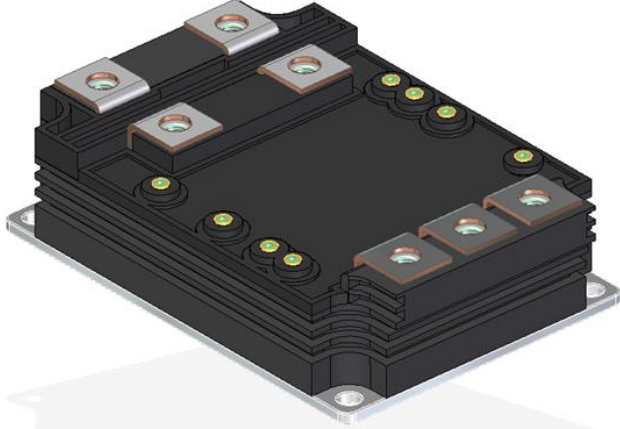
Annex 1: Package Outline Detailed Description




Code	Dimension	Module Appearance
	Max V_{NOM}	
	Max V_{ISOL}	
A =	W (mm)	140
	L (mm)	190
	H (mm)	48
	Max V_{NOM} (kV)	6.5
	Max V_{ISOL} (kV)	10.2
D =	W (mm)	140
	L (mm)	130
	H (mm)	38
	Max V_{NOM} (kV)	1.7
	Max V_{ISOL} (kV)	4

Code	Dimension	Module Appearance
	Max V_{NOM}	
	Max V_{ISOL}	
E =	W (mm)	140
	L (mm)	190
	H (mm)	38
	Max V_{NOM} (kV)	3.3
	Max V_{ISOL} (kV)	6
F =	W (mm)	140
	L (mm)	130
	H (mm)	38
	Max V_{NOM} (kV)	1.7
	Max V_{ISOL} (kV)	4





Code	Dimension	Module Appearance	
G =	Max V_{NOM}		
	Max V_{ISOL}		
	W (mm)		140
	L (mm)		130
	H (mm)		38
	Max V_{NOM} (kV)		3.3
N =	Max V_{ISOL} (kV)		
	W (mm)		140
	L (mm)		130
	H (mm)		38
	Max V_{NOM} (kV)		3.3
	Max V_{ISOL} (kV)		6

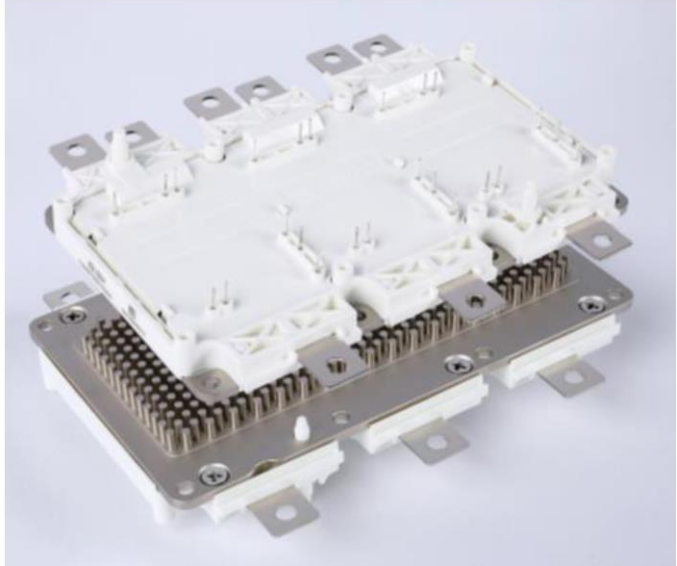
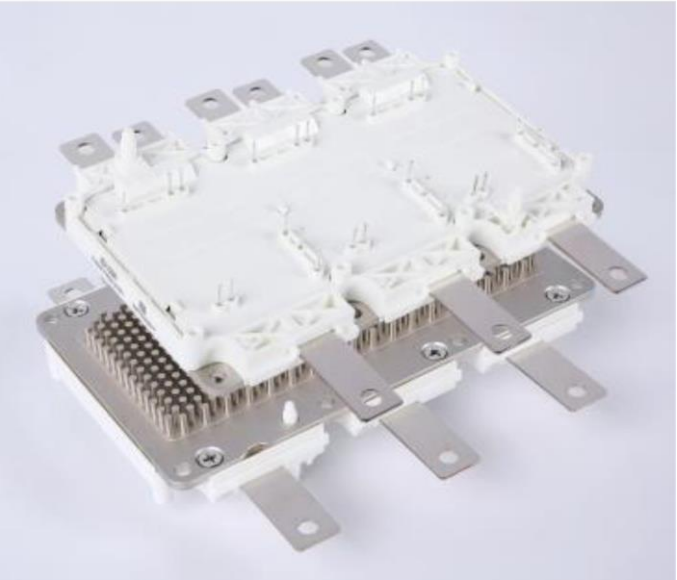
Code	Dimension		Module Appearance
	Max V_{NOM}		
	Max V_{ISOL}		
P =	W (mm)	140	
	L (mm)	73	
	H (mm)	38	
	Max V_{NOM} (kV)	3.3	
	Max V_{ISOL} (kV)	6	
U	W (mm)	140	
	L (mm)	100	
	H (mm)	40	
	Max V_{NOM} (kV)	3.3	
	Max V_{ISOL} (kV)	6	

Code	Dimension	Module Appearance	
V =	Max V_{NOM}		
	Max V_{ISOL}		
	W (mm)		140
	L (mm)		100
	H (mm)		40
X =	Max V_{NOM} (kV)		
	Max V_{ISOL} (kV)		10.2
	W (mm)		140
	L (mm)		130
	H (mm)		48
H1 =	Max V_{NOM} (kV)		
	Max V_{ISOL} (kV)		4
	W (mm)		250
	L (mm)		89
	H (mm)		38

Code	Dimension	Module Appearance
	Max V_{NOM}	
	Max V_{ISOL}	
H2 =	W (mm)	172
	L (mm)	89
	H (mm)	38
	Max V_{NOM} (kV)	1.7
	Max V_{ISOL} (kV)	4
M1 =	W (mm)	156
	L (mm)	62
	H (mm)	21
	Max V_{NOM} (kV)	1.7
	Max V_{ISOL} (kV)	4

Code	Dimension		Module Appearance
	Max V_{NOM}		
	Max V_{ISOL}		
S0 =	W (mm)	140	
	L (mm)	112	
	H (mm)	17	
	Max V_{NOM} (kV)	0.75	
	Max V_{ISOL} (kV)	2.5	

Code	Dimension Max V_{NOM} Max V_{ISOL}		Module Appearance Flat base Option
S2	W (mm)	140	
	L (mm)	112	
	H (mm)	20	
	Max V_{NOM} (kV)	0.75	Pin Fin Option
	Max V_{ISOL} (kV)	2.5	

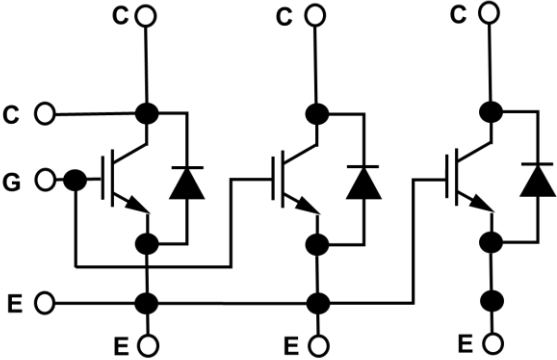
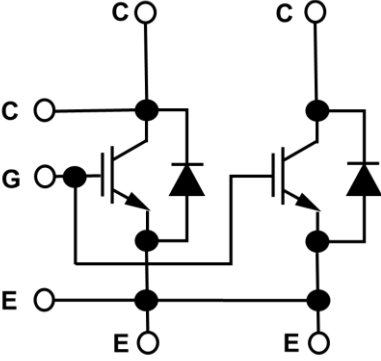
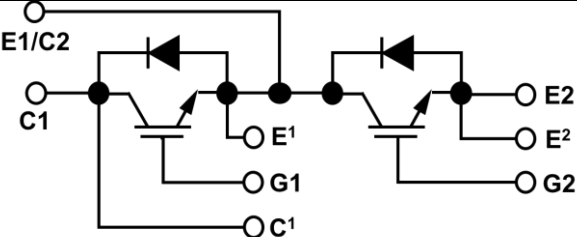
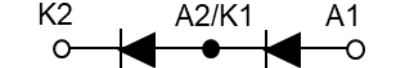
Code	Dimension Max V_{NOM} Max V_{ISOL}	Module Appearance Pin Fin Base with Short Tab Option
S3	<p>Special Selection 500</p> <p>W (mm) 152</p> <p>L (mm) 92</p> <p>H (mm) 24</p> <p>Max V_{NOM} (kV) 0.75</p> <p>Max V_{ISOL} (kV) 2.5</p>	
	<p>Special selection 502</p> <p>W (mm) 152</p> <p>L (mm) 92</p> <p>H (mm) 24</p> <p>Max V_{NOM} (kV) 0.75</p> <p>Max V_{ISOL} (kV) 2.5</p>	

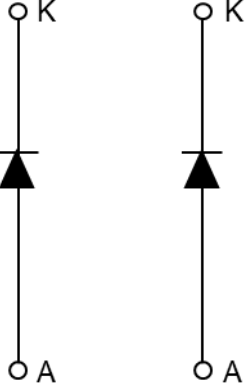
Annex 2: Circuit Configuration

Note: Terminal identifiers may change dependent on selected package, refer to individual datasheet for correct terminal alias.

Code	Configuration	Circuit
B	= Bi-directional switch	
D	= Dual Switch	
C	= Chopper non-committed diode arm	<p data-bbox="751 1464 1334 1496">Available in Packages Outlines: D, G, N & X</p> <p data-bbox="799 1883 1286 1912">Available in Package Outlines: A & E</p>

Code	Configuration	Circuit
F	= 6 Switch Unit	
Available in Package Outlines: S0, S2 & S3		
K	= Chopper, upper arm controlled	
L	= Chopper, lower arm controlled	

Code	Configuration	Circuit
S	= Single Switch	 <p data-bbox="810 651 1273 680">Available in Package Outlines: A, E</p>  <p data-bbox="794 1106 1294 1135">Available in Package Outlines: F, N, X</p>
H	= Half Bridge	
P	= Neutral Point Connection (Series Connected Pair)	 <p data-bbox="839 1554 1241 1583">Available in Package Outline P</p>

Code	Configuration	Circuit
X	= Independent Diodes	 <p data-bbox="804 600 1278 629">Available in Package Outlines A & E</p> <p data-bbox="804 1088 1278 1122">Available in Package Outlines D & X</p>

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