

# AN5700

## Part Numbering Nomenclature for IGBT & FRD Modules

### Application Note

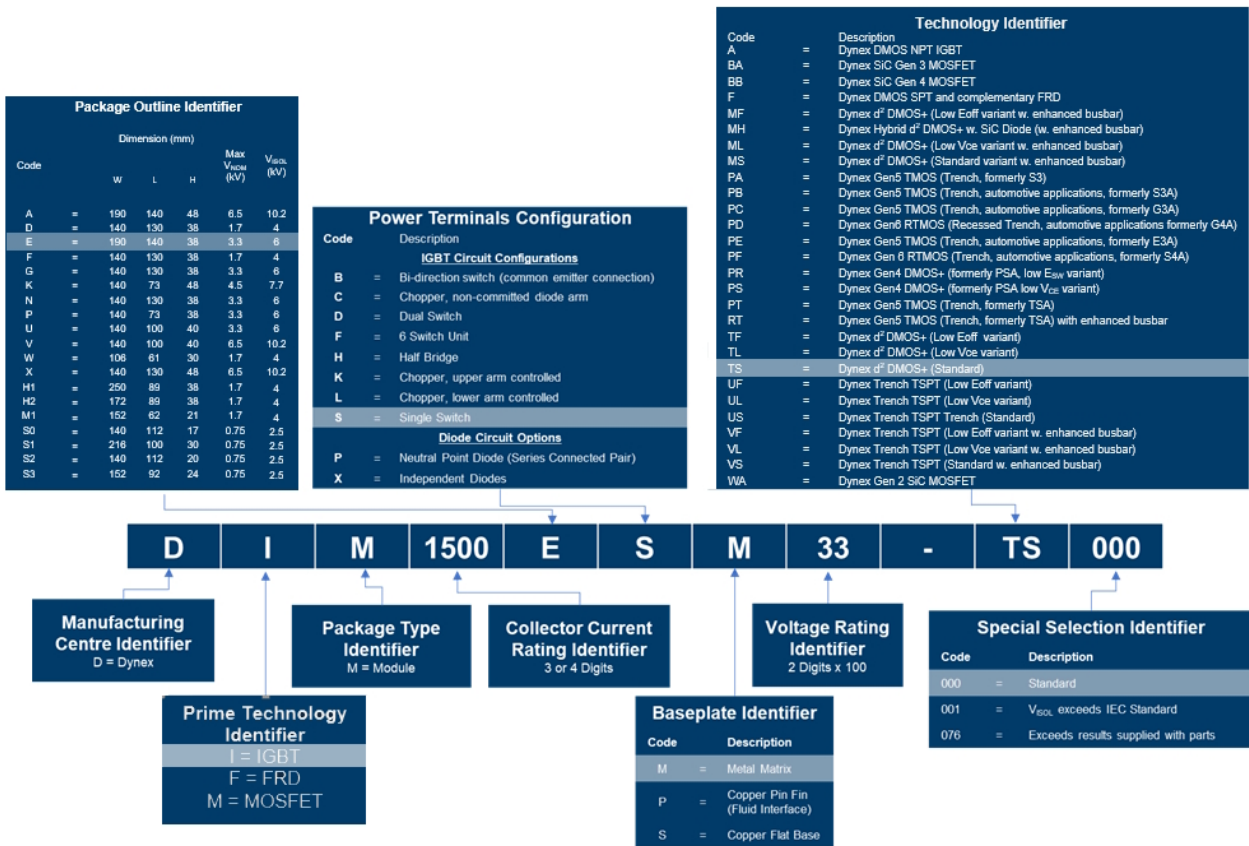
Replaces AN5700-4

AN5700-5 April 2024 LN43301

## 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

Code	Description
D	= Dynex

### Prime Technology Identifier

Code	Description
I	= IGBT
F	= FRD

### Collector Current Rating Identifier

DIM**1000**ASM65-US000

Collector current I<sub>c</sub> rating may be three or four characters in length; i.e. a 500A module will read as a DIM**500**XSM65-TS000.

**Package Outline Identifier**

DIM1000ASM65-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
K	=	140	73	48	4.5	7.7
N	=	140	130	38	3.3	6
P	=	140	73	38	3.3	6
U	=	140	100	40	3.3	6
V	=	140	100	40	6.5	10.2
W	=	106	61	30	1.7	4
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 Identifier**

DIM1000ASM65-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


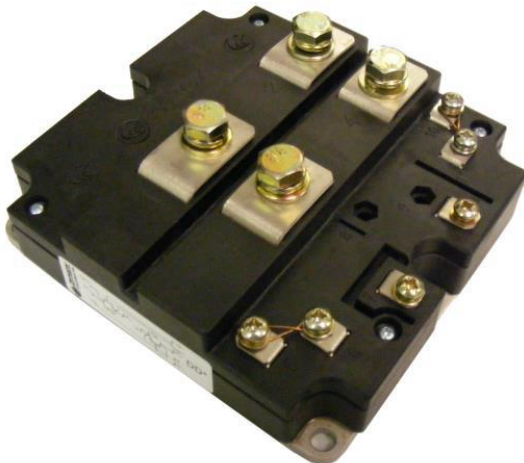
Code		Description
A	=	Dynex DMOS NPT IGBT
BA	=	Dynex SiC Gen 3 MOSFET
BB	=	Dynex SiC Gen 4 MOSFET
F	=	Dynex DMOS SPT and complementary FRD
MF	=	Dynex d <sup>2</sup> DMOS+ (Low E <sub>off</sub> variant w. enhanced busbar)
MH	=	Dynex Hybrid d <sup>2</sup> DMOS+ w. SiC Diode (w. enhanced busbar)
ML	=	Dynex d <sup>2</sup> DMOS+ (Low V <sub>ce</sub> variant w. enhanced busbar)
MS	=	Dynex d <sup>2</sup> 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 <sub>SW</sub> variant)
PS	=	Dynex Gen4 DMOS+ (formerly PSA011 low V <sub>CE</sub> variant)
PT	=	Dynex Gen5 TMOS (Trench, formerly TSA)
RT	=	Dynex Gen5 TMOS (Trench, formerly TSA) with enhanced busbar
TF	=	Dynex d <sup>2</sup> DMOS+ (Low E <sub>off</sub> variant)
TL	=	Dynex d <sup>2</sup> DMOS+ (Low V <sub>ce</sub> variant)
TS	=	Dynex d <sup>2</sup> DMOS+ (Standard)
UF	=	Dynex Trench TSPT (Low E <sub>off</sub> variant)
UL	=	Dynex Trench TSPT (Low V <sub>ce</sub> variant)
US	=	Dynex Trench TSPT Trench (Standard)
VF	=	Dynex Trench TSPT (Low E <sub>off</sub> variant w. enhanced busbar)
VL	=	Dynex Trench TSPT (Low V <sub>ce</sub> variant w. enhanced busbar)
VS	=	Dynex Trench TSPT (Standard w. enhanced busbar)
WA	=	Dynex SiC Gen 2 MOSFET

### 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	

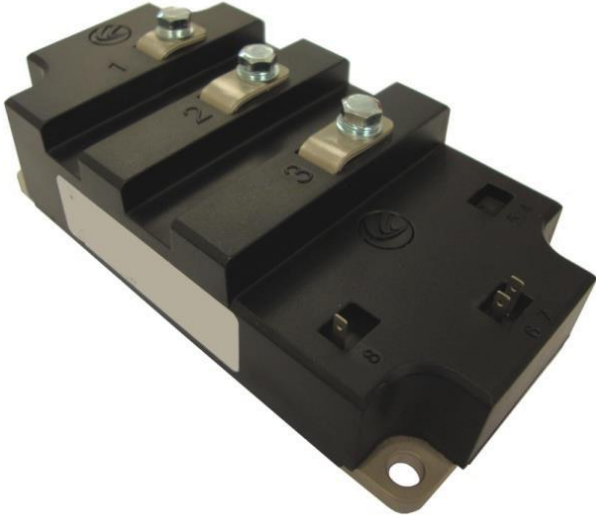

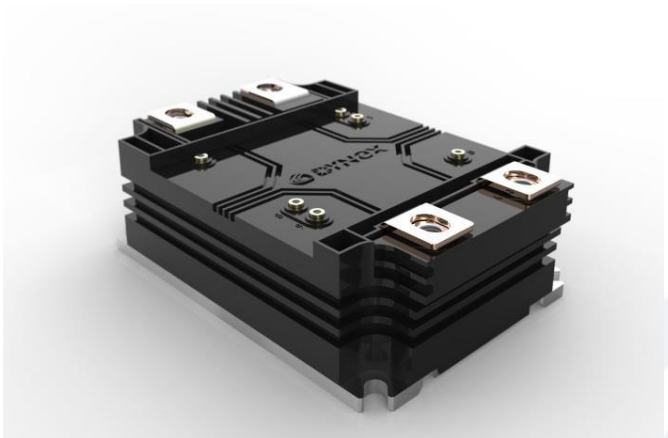
Code	Dimension	Module Appearance
	Max $V_{NOM}$	
	Max $V_{ISOL}$	
E =	W (mm)	140
	L (mm)	190
	H (mm)	38
	Max $V_{NOM}$ (kV)	3.3
	Max $V_{ISOL}$ (kV)	6
F =	W (mm)	140
	L (mm)	130
	H (mm)	38
	Max $V_{NOM}$ (kV)	1.7
	Max $V_{ISOL}$ (kV)	4


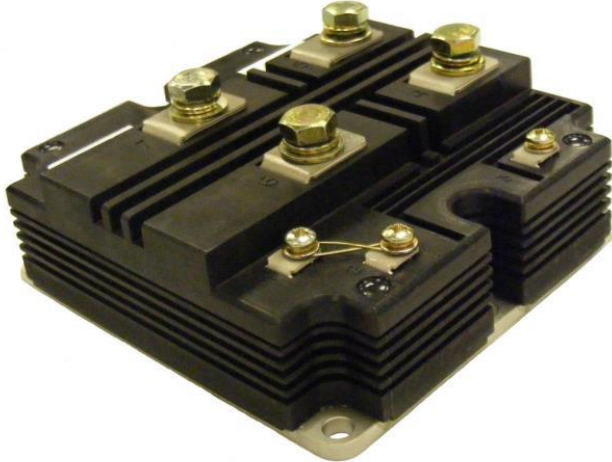






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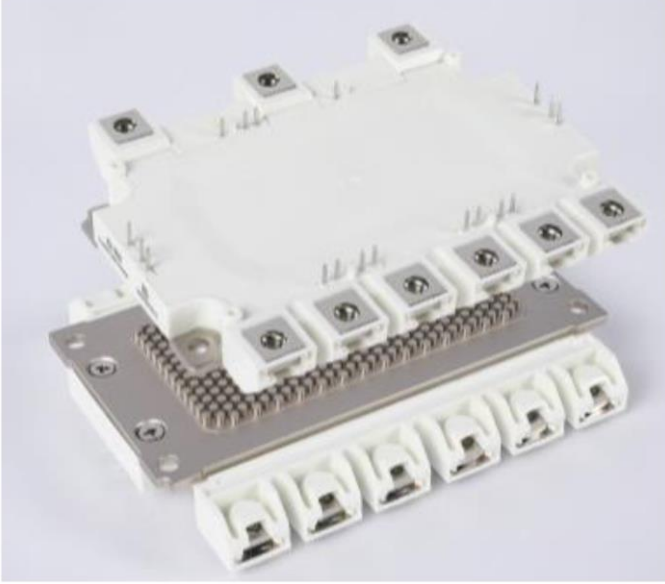
Code	Dimension	Module Appearance	
G =	Max $V_{NOM}$		
	Max $V_{ISOL}$		
	W (mm)		140
	L (mm)		130
	H (mm)		38
	Max $V_{NOM}$ (kV)		3.3
K =	Max $V_{ISOL}$ (kV)	6	
	W (mm)	140	
	L (mm)	73	
	H (mm)	48	
	Max $V_{NOM}$ (kV)	4.5	
	Max $V_{ISOL}$ (kV)	7.7	
N =	W (mm)	140	
	L (mm)	130	
	H (mm)	38	
	Max $V_{NOM}$ (kV)	3.3	
	Max $V_{ISOL}$ (kV)	6	


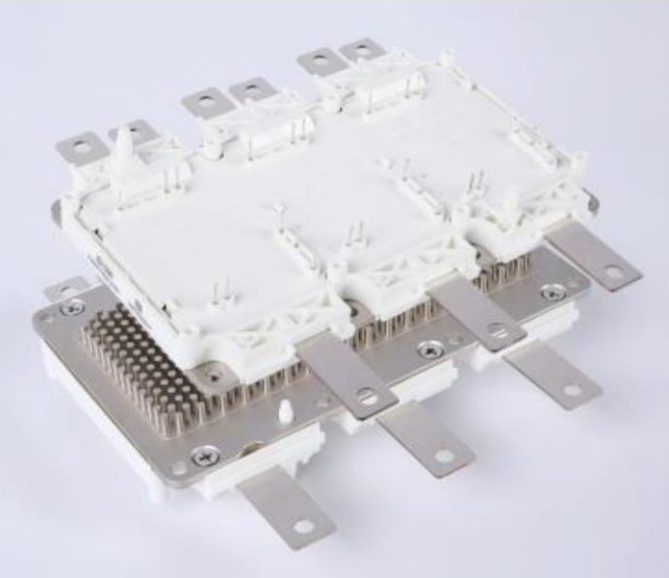


Code	Dimension Max $V_{NOM}$ Max $V_{ISOL}$	Module Appearance
P =	W (mm) 140 L (mm) 73 H (mm) 38 Max $V_{NOM}$ (kV) 3.3 Max $V_{ISOL}$ (kV) 6	
U	W (mm) 140 L (mm) 100 H (mm) 40 Max $V_{NOM}$ (kV) 3.3 Max $V_{ISOL}$ (kV) 6	
V =	W (mm) 140 L (mm) 100 H (mm) 40 Max $V_{NOM}$ (kV) 6.5 Max $V_{ISOL}$ (kV) 10.2	

Code	Dimension Max $V_{NOM}$ Max $V_{ISOL}$	Module Appearance
W =	W (mm) 106 L (mm) 61 H (mm) 31 Max $V_{NOM}$ (kV) 1.7 Max $V_{ISOL}$ (kV) 4	
X =	W (mm) 140 L (mm) 130 H (mm) 48 Max $V_{NOM}$ (kV) 6.5 Max $V_{ISOL}$ (kV) 10.2	
H1 =	W (mm) 250 L (mm) 89 H (mm) 38 Max $V_{NOM}$ (kV) 1.7 Max $V_{ISOL}$ (kV) 4	

Code	Dimension	Module Appearance	
H2 =	Max $V_{NOM}$		
	Max $V_{ISOL}$		
	W (mm)		172
	L (mm)		89
	H (mm)		38
	Max $V_{NOM}$ (kV)		1.7
Max $V_{ISOL}$ (kV)	4		
M1 =	Max $V_{NOM}$		
	Max $V_{ISOL}$		
	W (mm)		156
	L (mm)		62
	H (mm)		21
	Max $V_{NOM}$ (kV)		1.7
Max $V_{ISOL}$ (kV)	4		
S0 =	Max $V_{NOM}$		
	Max $V_{ISOL}$		
	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	Pin Fin Option	
	Max $V_{NOM}$ (kV)	0.75		
	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 <math>V_{NOM}</math> (kV)    0.75</p> <p>Max <math>V_{ISOL}</math> (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 <math>V_{NOM}</math> (kV)    0.75</p> <p>Max <math>V_{ISOL}</math> (kV)    2.5</p>	

### Annex 2: Circuit Configuration

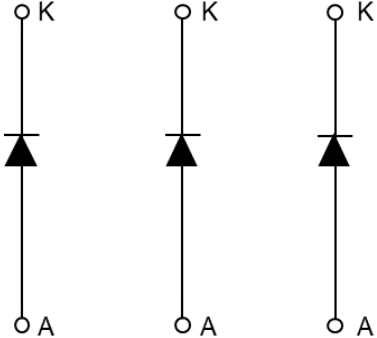
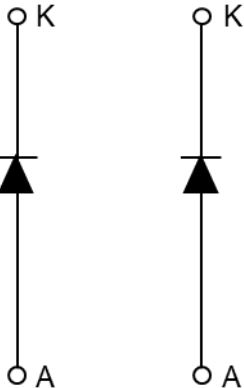
Note: Terminal identifiers may change dependent on selected package, refer to individual datasheet for correct terminal alias.

Code	Configuration	Circuit
B	= Bi-directional switch	
D	= Dual Switch	
C	= Chopper non-committed diode arm	<p data-bbox="751 1435 1334 1469">Available in Packages Outlines: D, G, N &amp; X</p> <p data-bbox="799 1850 1286 1883">Available in Package Outlines: A &amp; 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="810 616 1273 645">Available in Package Outlines: A, E</p>
		<p data-bbox="794 1064 1294 1093">Available in Package Outlines: F, N, X</p>
H	= Half Bridge	
P	= Neutral Point Connection (Series Connected Pair)	<p data-bbox="842 1518 1241 1547">Available in Package Outline P</p>



Code	Configuration	Circuit
X	= Independent Diodes	 <p data-bbox="804 633 1278 658">Available in Package Outlines A &amp; E</p>  <p data-bbox="804 1122 1278 1146">Available in Package Outlines D &amp; X</p>

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