

Part Numbering Nomenclature for IGBT & FRD Module

Replaces AN5700-2

AN5700-3

February 2020

(LN39518)

Introduction

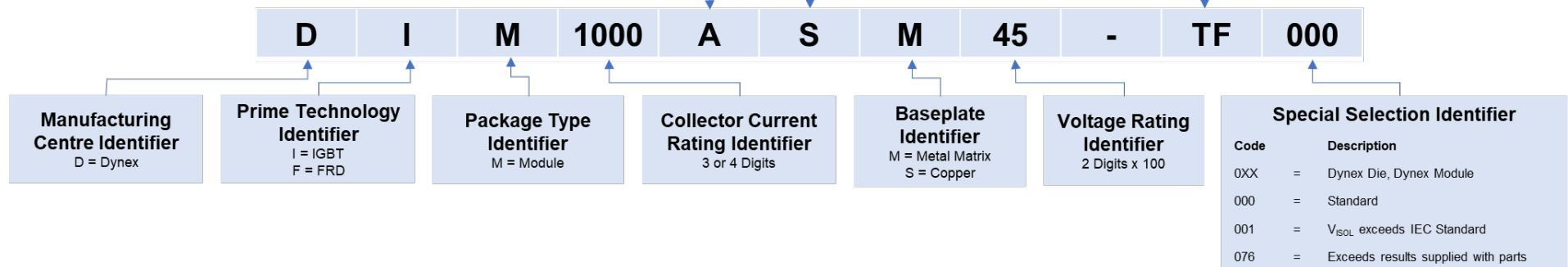
Dynex IGBT modules come in a variety of blocking voltages, current capacity, circuit configuration dimensions and isolation voltages; this application note is intended to explain Dynex's module nomenclature regime.

Summary Table

Package Outline Identifier					
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

Power Terminals Configuration	
Code	Description
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

Technology Identifier	
Code	Description
A	= Dynex DMOS NPT IGBT
F	= Dynex DMOS SPT and complementary FRD
MF	= Dynex d ² DMOS SPT (Low E _{off} variant w. enhanced busbar)
MH	= Dynex Hybrid DMOS SPT w. SiC Diode (w. enhanced busbar)
ML	= Dynex d ² DMOS SPT (Low V _{ce} variant w. enhanced busbar)
MS	= Dynex d ² DMOS SPT (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)
PS	= Dynex Gen4 DMOS (formerly PSA)
PT	= Dynex Gen5 TMOS (Trench, formerly TSA)
TF	= Dynex d ² DMOS SPT (Low E _{off} variant)
TL	= Dynex d ² DMOS SPT (Low V _{ce} variant)
TS	= Dynex d ² DMOS SPT (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)



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.

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

Package Identifier

DIMM1000ASM65-US000

Code	Description
M	= Module
S	= Substrate

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 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
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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

Power Terminals Configuration Identifier

DIM1000ASM65-US000

Modules may be configured in the following options:

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

Baseplate Material Identifier

DIM1000ASM65-US000

Letter	Baseplate Material
M	= Metal Matrix
S	= Copper

Voltage Rating Identifier

DIM1000ASM**65**-US000

Multiply two-digit voltage rating identifier by 100.

Technology Identifier

DIM1000ASM**65-**US****000




Code	Description
A	= Dynex DMOS NPT IGBT
F	= Dynex DMOS SPT and complementary FRD
MF	= Dynex d ² DMOS SPT (Low Eoff variant w. enhanced busbar)
MH	= Dynex Hybrid d ² DMOS SPT w. SiC Diode (w. enhanced busbar)
ML	= Dynex d ² DMOS SPT (Low Vce variant w. enhanced busbar)
MS	= Dynex d ² DMOS SPT (Standard variant w. enhanced busbar)
PA	= Dynex Gen5 TMOS (Trench, formerly S3)
PB	= Dynex Gen5 TMOS (Trench, automotive applications, formerly S3A)
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PD	= Dynex Gen6 RTMOS (Recessed Trench, automotive applications formerly G4A)
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PF	= Dynex Gen 6 RTMOS (Trench, automotive applications, formerly S4A)
PS	= Dynex Gen4 DMOS (formerly PSA)
PT	= Dynex Gen5 TMOS (Trench, formerly TSA)
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TL	= Dynex d ² DMOS SPT (Low Vce variant)
TS	= Dynex d ² DMOS SPT (Standard)
UF	= Dynex Trench TSPT (Low Eoff variant)
UL	= Dynex Trench TSPT (Low Vce variant)
US	= Dynex Trench TSPT Trench (Standard)
VF	= Dynex Trench TSPT (Low Eoff variant w. enhanced busbar)
VL	= Dynex Trench TSPT (Low Vce variant w. enhanced busbar)
VS	= Dynex Trench TSPT (Standard w. enhanced busbar)




Special Selection Identifier


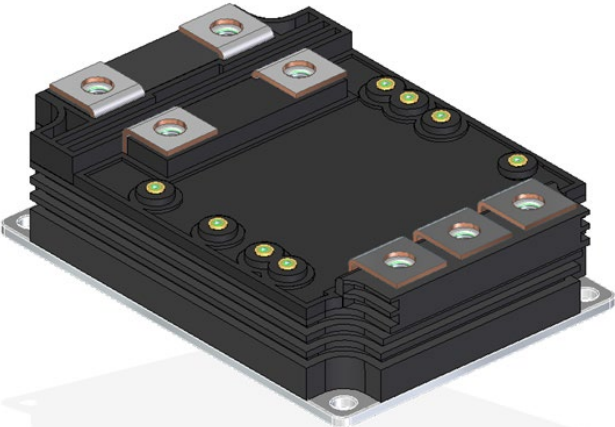
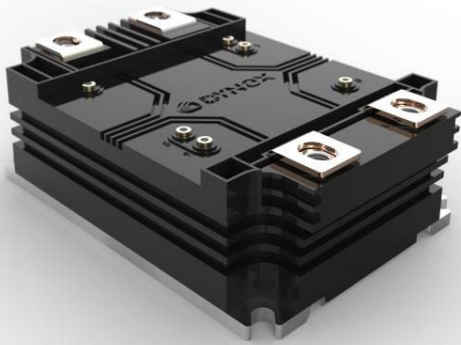
DIM1000ASM**65-**US****000




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	
A =	Max V_{NOM}		
	Max V_{ISOL}		
	W (mm)		140
	L (mm)		190
	H (mm)		48
D =	Max V_{NOM} (kV)		
	Max V_{ISOL} (kV)		
	W (mm)		140
	L (mm)		130
	H (mm)		38
E =	Max V_{NOM} (kV)		
	Max V_{ISOL} (kV)		
	W (mm)		140
	L (mm)		190
	H (mm)		38
	Max V_{NOM} (kV)	3.3	
	Max V_{ISOL} (kV)	6	

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

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

Code	Dimension	Module Appearance	
X =	Max V_{NOM}		
	Max V_{ISOL}		
	W (mm)		140
	L (mm)		130
	H (mm)		48
	Max V_{NOM} (kV)		6.5
H1 =	Max V_{ISOL} (kV)		
	W (mm)		250
	L (mm)		89
	H (mm)		38
	Max V_{NOM} (kV)		1.7
	Max V_{ISOL} (kV)		4
H2 =	Max V_{ISOL} (kV)		
	W (mm)		172
	L (mm)		89
	H (mm)		38
	Max V_{NOM} (kV)		1.7
	Max V_{ISOL} (kV)		4

Code	Dimension		Module Appearance
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		

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="743 1433 1324 1460">Available in Packages Outlines: D, G, N & X</p> <p data-bbox="788 1850 1273 1877">Available in Package Outlines: A & E</p>
F	= 6 Switch Unit	Pending

Code	Configuration	Circuit
K	= Chopper, upper arm controlled	
L	= Chopper, lower arm controlled	
S	= Single Switch	<p data-bbox="799 1133 1262 1162">Available in Package Outlines: A, E</p>
S	= Single Switch	<p data-bbox="783 1581 1286 1610">Available in Package Outlines: F, N, X</p>
H	= Half Bridge	

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The products must not be touched when operating because there is a danger of electrocution or severe burning. Always use protective safety equipment such as appropriate shields for the product and wear safety glasses. Even when disconnected any electric charge remaining in the product must be discharged and allowed to cool before safe handling using protective gloves.

Extended exposure to conditions outside the product ratings may affect reliability leading to premature product failure. Use outside the product ratings is likely to cause permanent damage to the product. In extreme conditions, as with all semiconductors, this may include potentially hazardous rupture, a large current to flow or high voltage arcing, resulting in fire or explosion. Appropriate application design and safety precautions should always be followed to protect persons and property.

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Preliminary Information:	The product design is complete and final characterisation for volume production is in progress. The datasheet represents the product as it is now understood but details may change.
No Annotation:	The product has been approved for production and unless otherwise notified by Dynex any product ordered will be supplied to the current version of the data sheet prevailing at the time of our order acknowledgement.

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