

STPOWER IGBT 1200 V M series



“Low-Loss” Trench gate field-stop IGBTs



STPOWER IGBT M series increases energy efficiency and ruggedness in motor drives and industrial power applications

The 1200 V TFS STPOWER IGBT M series, with wide current capability from 8A to 75A, offers the best compromise between performance and short-circuit robustness, being tailored for different Industrial applications working up to 20kHz in hard switching topologies such as Motor Drives, Air-con inverters and GPI.

KEY FEATURES

- 10 μ s minimum short circuit capability at starting T_j of 150 °C
- Wide current range from 8 to 40 A in discrete package and up to 75 A in bare die
- 175 °C maximum operating junction temperature (T_j)
- The lowest overall losses up to 20 kHz

KEY BENEFITS

- Longer lifetime
- Safe paralleling
- Soft and fast recovery antiparallel diode
- High robustness

MAIN APPLICATIONS

- Motor drives
- GPI
- Air conditioning inverters

1200 V STPOWER IGBT M series STGW40M120DF3 output characteristics and switching off

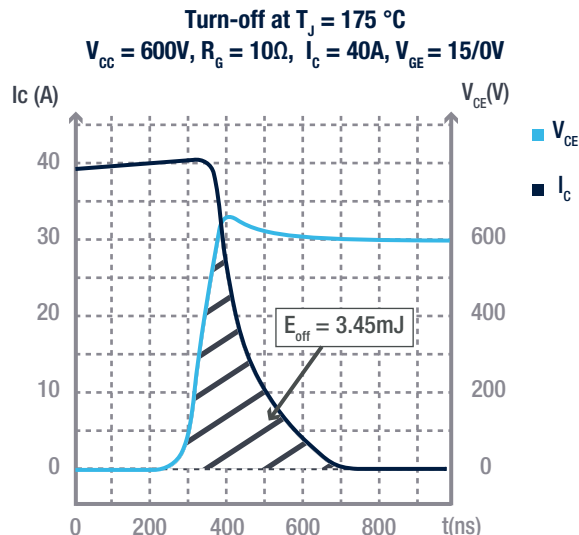
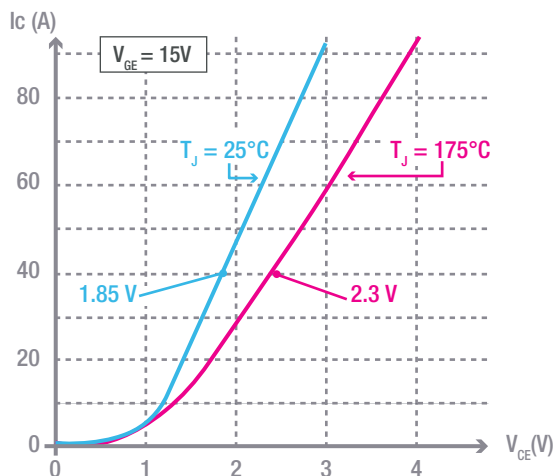
The typical output characteristics and switching-off are showed below.

On the left, the typical output characteristics for the STGW40M120DF3 use same size at both 25 °C and 175 °C. As shown below a positive derating of $V_{CE(sat)}$ is resulting: from 1.85 V at 25 °C to 2.3 V at 175 °C.

On the right, the typical switching-off is showed. Despite the extremely high temperature of 175 °C, the switching-off loss are limited and no important tail current is resulting. This to show the best compromise between conduction and switching ideal for any industrial drive applications working up to 20 kHz in hard-switching circuitries.

Typical curves

Output Characteristics



Products portfolio

IGBT P/Ns	BV _{CES}	I _{CN} ¹⁾	V _{ce(sat)} ²⁾	E _{off} ³⁾	t _{sc} ⁴⁾	FRD Option	Package			
	[V]	[A]	[V]	[m.J]	[μs]		TO-247	TO-247 LL	TO-220	Bare die
STGx8M120DF3	1200	8	1.85	0.37	10	Very fast	W	WA	P	D7
STGx15M120F3		15		0.85		-	-	P	D7 or D8	
STGx15M120DF3		15		0.85		W	WA	-	-	
STGx25M120DF3		25		1.3		W	WA	-	D7	
STG35M120F3Dx		35		1.83		-	-	-	D7 or D8	
STGx40M120DF3		40		2.25		W	WA	-	D7	
STG75M120F3Dx		73		4.2		-	-	-	D7 or D8	

1) I_{CN}: Nominal collector current @ T_J = 100 °C

2) V_{ce(sat)}: Typical conduction losses @ I_{CN}, T_J = 25 °C

3) E_{off} / E_{off}: Typical switching energy losses @ I_{CN}, T_J = 25 °C, V_{CC} = 600 V

4) t_{sc}: min short circuit withstand time @ V_{CC} ≤ 600V, T_J-starts ≤ 150 °C, V_{GE} = 15 V

For more information on STPOWER IGBT products and solution download and consult the APP ST-IGBT-Finder



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