C3M0120100J
Transition Guide

Wolfspeed SEPTEMBER 2024

900/1000V → 1200V TRANSITION

- Transitioning to 1200V class devices provides:
  - Increased $R_{DS(ON)}$ options
  - Increased package options
  - Improved availability and lead times
  - Broader range of applications supported
  - Increased scalability across power levels
- Comparable 1200V products offer potential drop-in solutions for existing designs

SUGGESTED REPLACEMENT OPTION 1

	C3M0120100J	C3M0075120J	Notes
Status	EOL issued Oct 2024	Active	Already qualified for production on 200mm
$V_{DS\ max}$ (V)	1000	1200	Increased V_{DS} margin
V_{GS} (V)	-4/+15	-4/+15	Compatible gate voltages
I_D (A)	22	30	
$R_{DS(ON)}$ (mΩ)	120	75	Significantly reduced conduction losses
C_{oss} (pF)	48	58	
C_{iss}/C_{rss}	138	695	Reduced impact of miller capacitance
Q_G (nC)	18	48	Increased gate drive power
$R_{G(int)}$ (Ω)	13	9	
$R_{\theta JC}$ (C/W)	1.5 (max)	1.1	Improved thermal impedance
Package	TO-263-7	TO-263-7	Fully Compatible
Pricing			Improved price

This replacement option is best for most designs and will offer improved efficiency and thermal performance for most applications.

All parameters are typical values at 25 °C unless noted

SUGGESTED REPLACEMENT OPTION 2: HIGH F_{SW} APPLICATIONS

	C3M0120100J	C3M0160120J	Notes
Status	EOL issued Oct 2024	Active	200mm qualification in process. Samples available October 2024, production available December 2024.
$V_{DS\ max}$ (V)	1000	1200	Increased V_{DS} margin
V_{GS} (V)	-4/+15	-4/+15	Compatible gate voltages
I_D (A)	22	17	
$R_{DS(ON)}$ (mΩ)	120	160	Increased conduction loss
C_{oss} (pF)	48	39	Reduced output capacitance improves switching speed
C_{iss}/C_{rss}	138	211	Reduced impact of miller capacitance
Q_G (nC)	18	24	Increased gate drive power
$R_{G(int)}$ (Ω)	13	8	
$R_{\theta JC}$ (C/W)	1.5 (max)	1.38	Similar thermal impedance
Package	TO-263-7	TO-263-7	Fully Compatible
Pricing		↘	Improved price

This option may be suitable for applications that are switching loss dominated.

All parameters are typical values at 25 °C unless noted

NEXT STEPS

- Samples of recommended replacements available through your Wolfspeed sales team, or at our online Sample Center
- Ask any technical questions to your Wolfspeed FAE or through our Power Applications Forum
- Utilize SpeedFit™ to simulate the performance of the recommended replacement devices
  - Keep in mind, dynamic behavior may be different, requiring a different gate resistor value
- The SpeedVal™ Kit evaluation platform may be utilized to compare the performance and switching behavior

THANK YOU