

# C3M0065090D


# 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


	C3M0065090D	C3M0075120D	Notes
Status	NRND	Active	1200V device already qualified for production on 200mm
$V_{DS\ max}$ (V)	900	1200	Increased voltage headroom
$V_{GS}$ (V)	-4/15	-4/+15	Compatible gate drive levels
$I_D$ (A)	36	32	
$R_{DS(ON)}$ (m $\Omega$ )	65	75	Increased conduction losses
$C_{oss}$ (pF)	66	58	Reduced output capacitance improves switching speed
$C_{iss}/C_{rss}$	152	695	Reduced impact of miller capacitance
$Q_G$ (nC)	33	54	Increased gate power requirement
$R_{G(int)}$ ( $\Omega$ )	3.5	9	Higher internal $R_G$ may require reduced $R_{G(EXT)}$ in gate drive circuit
$R_{\theta JC}$ (C/W)	1 (max)	1.1 (max)	
Package	TO-247-3	TO-247-3	Fully Compatible
Pricing			Improved price

This replacement option is ideal for most designs

All parameters are typical values at 25 °C unless noted

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## SUGGESTED REPLACEMENT OPTION 2: CONDUCTION LOSS DOMINATED DESIGNS

	C3M0065090D	C3M0040120D	Notes
Status	NRND	Active	1200V device already qualified for production on 200mm
$V_{DS\ max}$ (V)	900	1200	Increased voltage headroom
$V_{GS}$ (V)	-4/15	-4/+15	Compatible gate drive levels
$I_D$ (A)	36	66	
$R_{DS(on)}$ (m $\Omega$ )	65	40	Reduced conduction loss
$C_{oss}$ (pF)	66	103	
$C_{iss}/C_{rss}$	152	580	Reduced impact of miller capacitance
$Q_G$ (nC)	33	101	Increased gate power requirement
$R_{G(int)}$ ( $\Omega$ )	3.5	3.5	
$R_{\theta JC}$ (C/W)	1 (max)	0.46	Improved thermal impedance
Package	TO-247-3	TO-247-3	Slightly different footprint. See following slide for details.
Pricing			Improved price

This replacement option may be used to achieve higher efficiency or more thermal margin if needed

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## 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

A large, stylized grey graphic of a wolf's head, facing right, serves as a background for the text. The graphic is composed of several overlapping, angular shapes that define the wolf's snout, eye, and ear.

**THANK YOU**