

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Source to Source Breakdown Voltage	V _{(BR)SSS}	I _S = 1 mA, V _{GS} = 0 V (Figure 1)	12	–	–	V
Zero-Gate Voltage Source Current	I _{SSS}	V _{SS} = 10 V, V _{GS} = 0 V (Figure 1)	–	–	1	μA
Gate to Source Leakage Current	I _{GSS}	V _{GS} = ±8 V, V _{SS} = 0 V (Figure 2)	–	–	±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{SS} = 6 V, I _S = 1 mA (Figure 3)	0.3	–	1.3	V
Static Source to Source On-State Resistance	R _{SS(on)}	I _S = 5 A, V _{GS} = 4.5 V (Figure 4)	1.9	2.75	3.55	mΩ
		I _S = 5 A, V _{GS} = 3.8 V (Figure 4)	2.0	2.9	3.75	mΩ
		I _S = 5 A, V _{GS} = 3.1 V (Figure 4)	2.25	3.1	4.8	mΩ
		I _S = 5 A, V _{GS} = 2.5 V (Figure 4)	2.5	3.5	6.9	mΩ
Turn-ON Delay Time	t _{d(on)}	V _{SS} = 6 V, V _{GS} = 4.5 V, I _S = 3 A, R _g = 10 kΩ (Figure 5)	–	10	–	μs
Rise Time	t _r		–	26	–	μs
Turn-OFF Delay Time	t _{d(off)}		–	195	–	μs
Fall Time	t _f		–	111	–	μs
Total Gate Charge	Q _g	V _{SS} = 6 V, V _{GS} = 4.5 V, I _S = 18 A (Figure 6)	–	46	–	nC
Forward Source to Source Voltage	V _{F(S-S)}	I _S = 3 A, V _{GS} = 0 V (Figure 7)	–	0.75	1.2	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Test Circuits are Example of Measuring FET1 Side

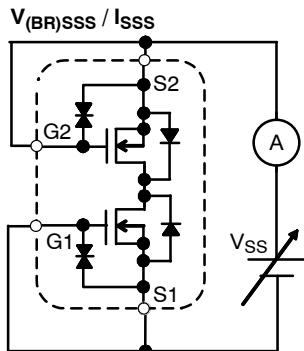
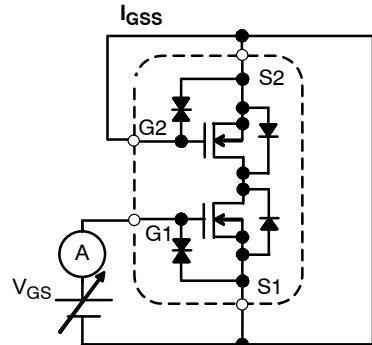
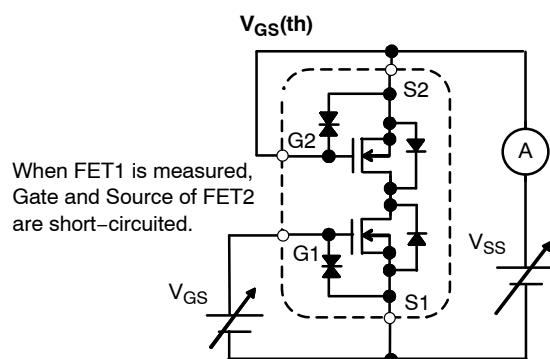


Figure 1. Test Circuit 1



When FET1 is measured,
Gate and Source of FET2
are short-circuited.

Figure 2. Test Circuit 2



When FET1 is measured,
Gate and Source of FET2
are short-circuited.

Figure 3. Test Circuit 3

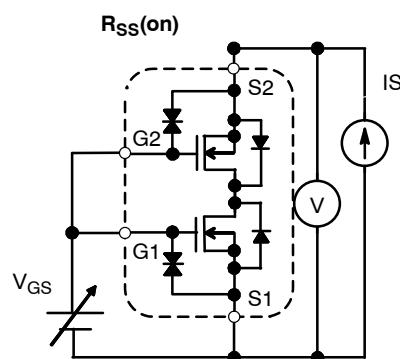
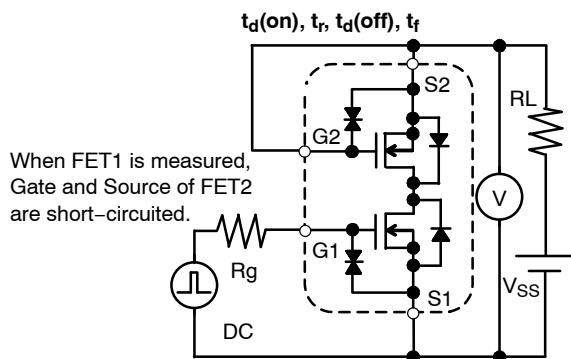
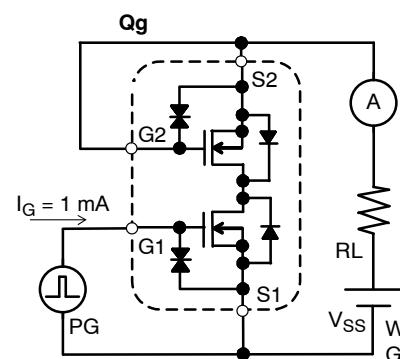


Figure 4. Test Circuit 4



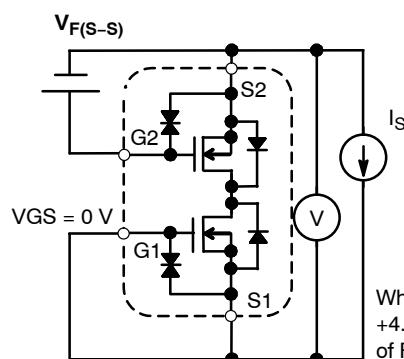
When FET1 is measured,
Gate and Source of FET2
are short-circuited.

Figure 5. Test Circuit 5



When FET1 is measured,
Gate and Source of FET2
are short-circuited.

Figure 6. Test Circuit 6



When FET1 is measured,
+4.5 V is added to V_{GS}
of FET2.

Figure 7. Test Circuit 7

NOTE: When FET2 is measured, the position of FET1 and FET2 is switched.

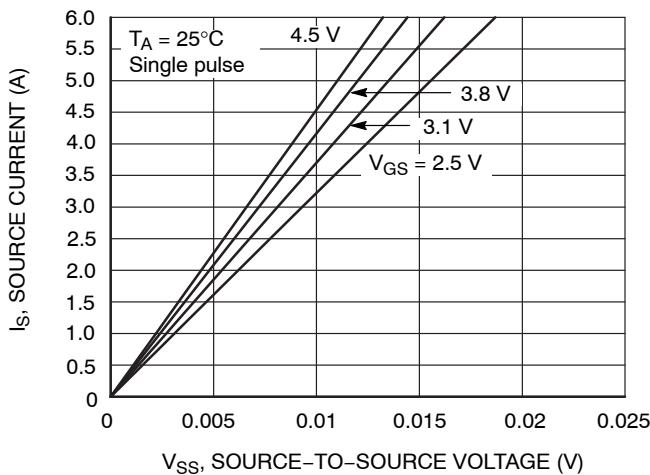


Figure 8. On-Region Characteristics

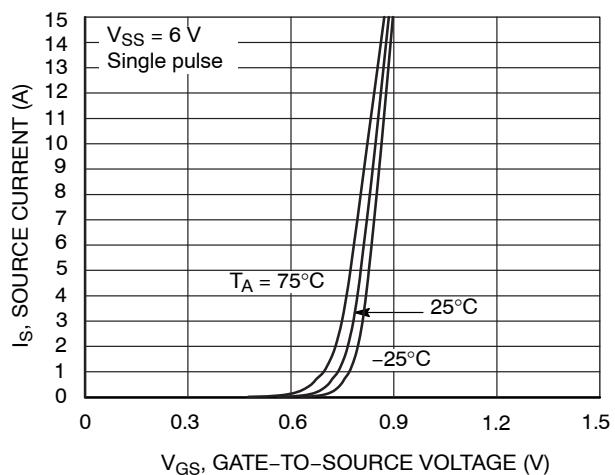


Figure 9. Transfer Characteristics

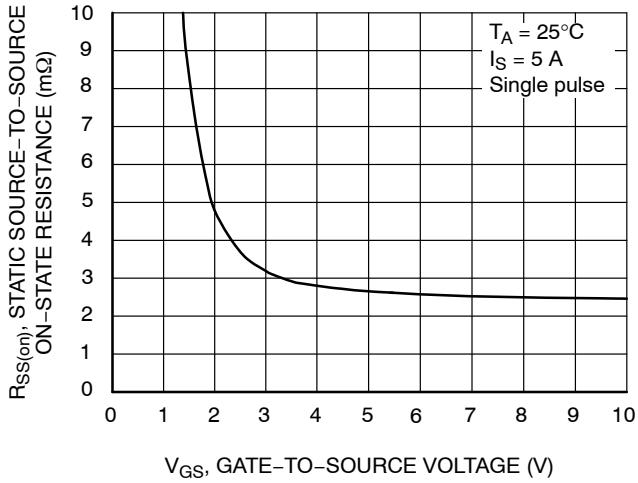


Figure 10. On-Resistance vs. Gate-to-Source Voltage

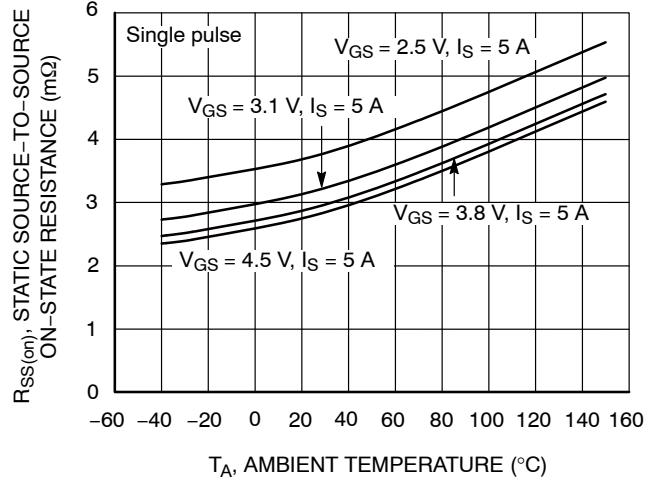


Figure 11. On-Resistance vs. Temperature

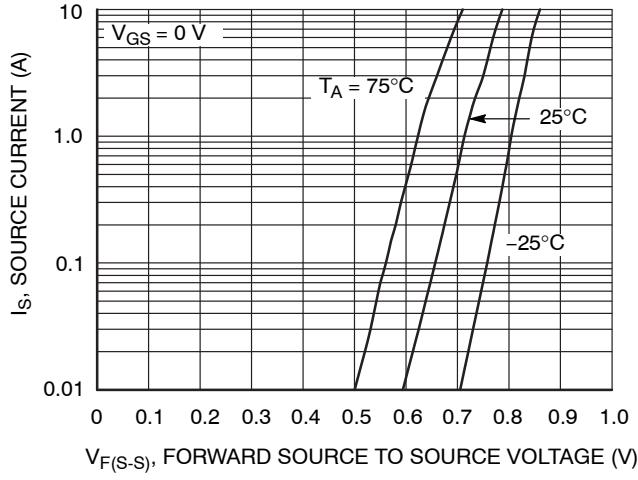


Figure 12. Forward Source-to-Source Voltage vs. Current

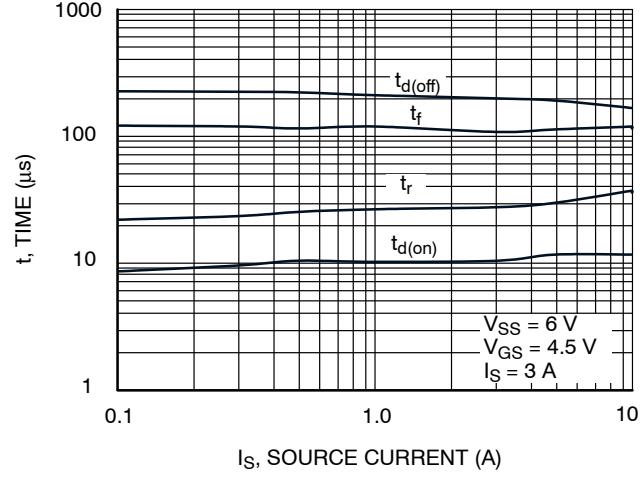


Figure 13. Switching Time vs. Source Current

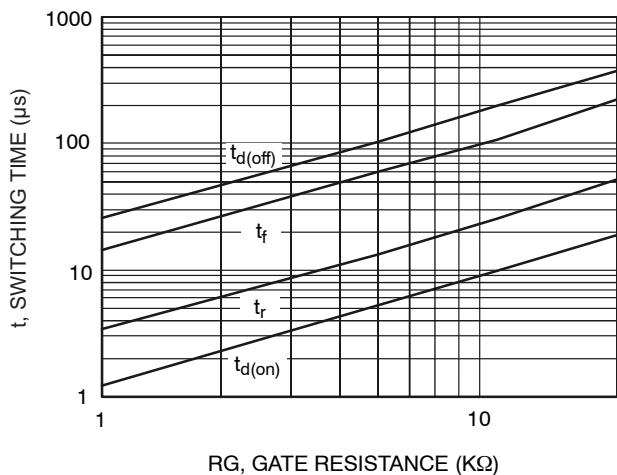


Figure 14. Switching Time vs. Gate Resistance

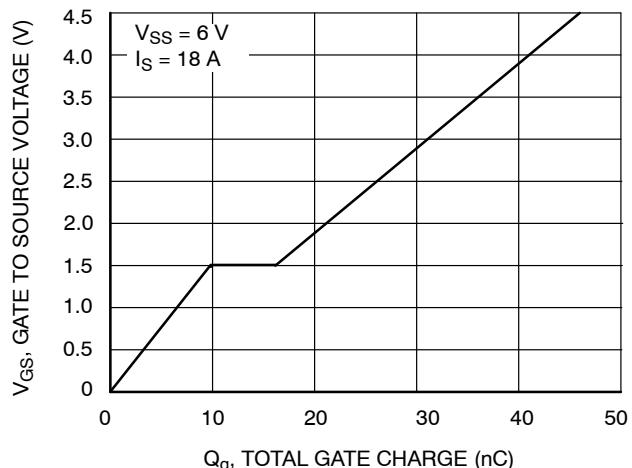


Figure 15. Gate-To-Source Voltage vs. Total Charge

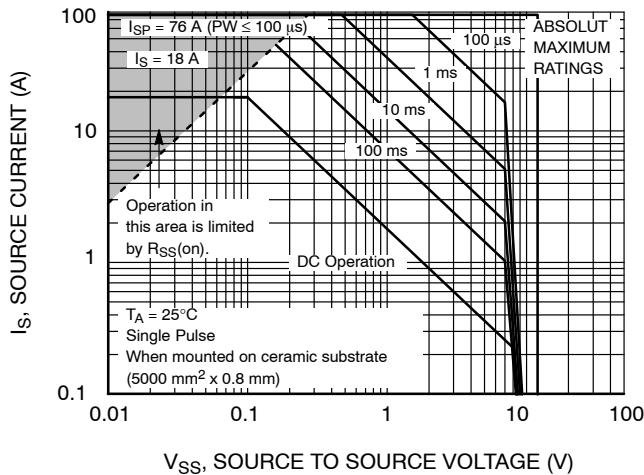


Figure 16. Safe Operating Area

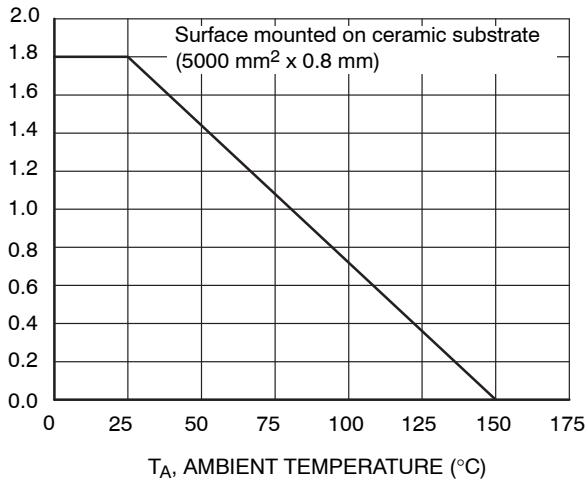


Figure 17. Total Dissipation vs. Temperature

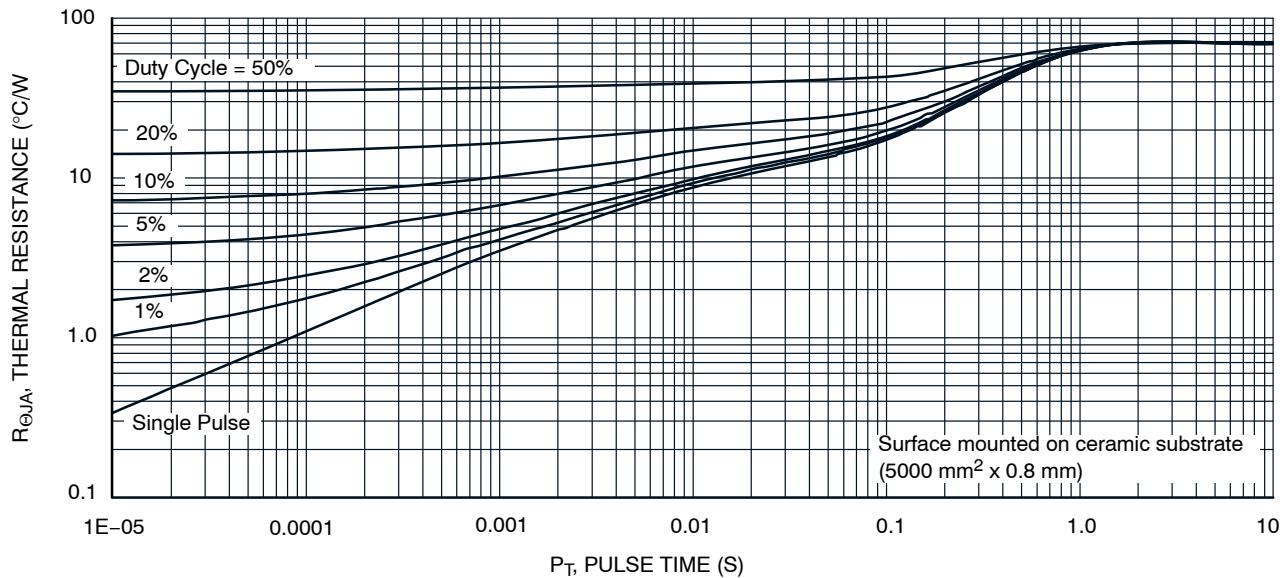


Figure 18. Thermal Response

EFC2J022NUZ

ORDERING INFORMATION

Device	Marking	Package	Shipping [†] (Qty / Packing)
EFC2J022NUZTCG	NJ	WLCSP10 1.84x1.96x0.10 (Pb-Free / Halogen Free)	5000 / Tape & Reel

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

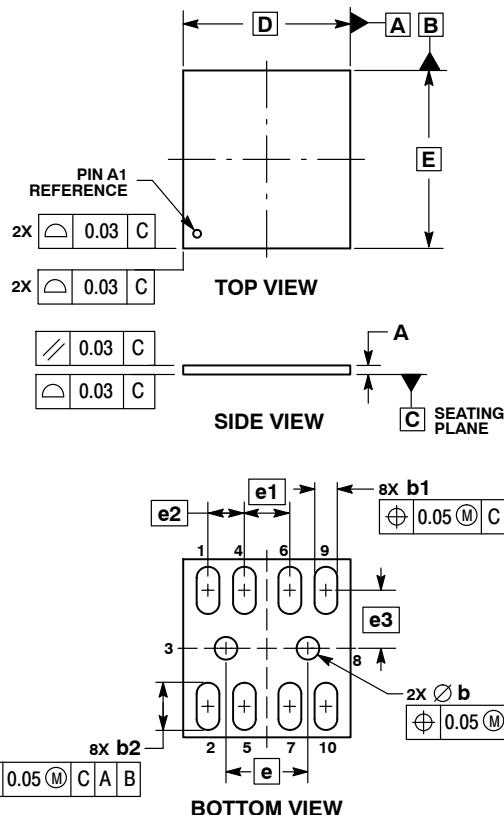
Note on usage: Since the EFC2J022NUZ is a MOSFET product, please avoid using this device in the vicinity of highly charged objects. Please contact sales for use except the designated application.



SCALE 4:1

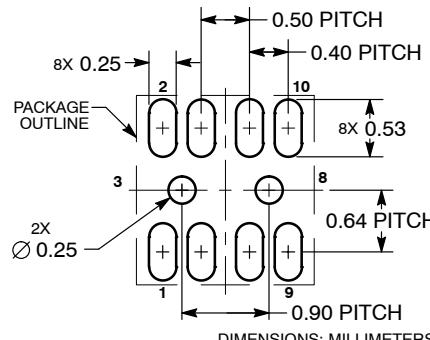
WLCSP10 1.84x1.96x0.10
CASE 567PH
ISSUE A

DATE 06 APR 2017



NOTES:
 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.08	0.10	0.12
b	0.22	0.25	0.28
b1	0.22	0.25	0.28
b2	0.50	0.53	0.56
D	1.84	BSC	
E	1.96	BSC	
e	0.90	BSC	
e1	0.50	BSC	
e2	0.40	BSC	
e3	0.64	BSC	

RECOMMENDED
SOLDERING FOOTPRINT*

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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DESCRIPTION:	WLCSP10 1.84X1.96X0.10	PAGE 1 OF 1

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