

CMSBN12209-HF

Dual N-Channel

RoHS Device

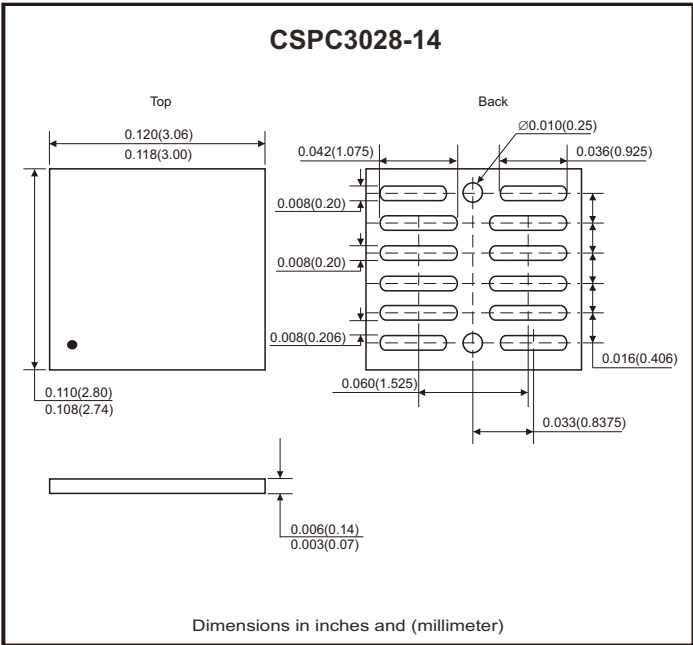
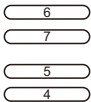
Halogen Free

Features

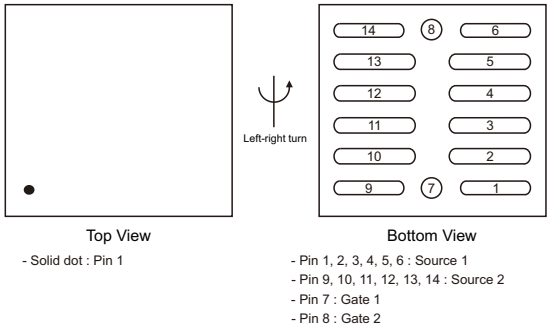
- It is ESD protected.
- This device is suitable for use as a unidirectional or bi-directional load switch, facilitated by its common-drain configuration.

Mechanical data

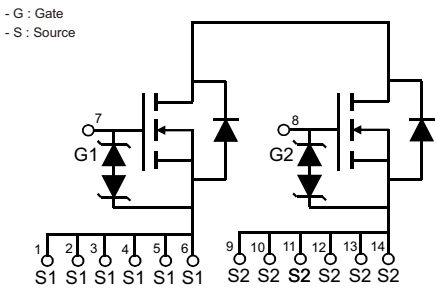
- Case: CSPC3028-14, standard package, molded plastic.



Pin assignment



Circuit diagram



Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Source to source voltage	V _{SS}	12	V
Gate-source voltage	V _{GS}	±8	V
Source current DC (Note 1)	I _S	19.8	A
Source current pulse (Note 1, 2)	I _{SP}	198	A
Total dissipation (Note 1)	P _T	3.1	W
Channel temperature	T _{ch}	150	°C
Storage temperature range	T _{STG}	-55 to +150	

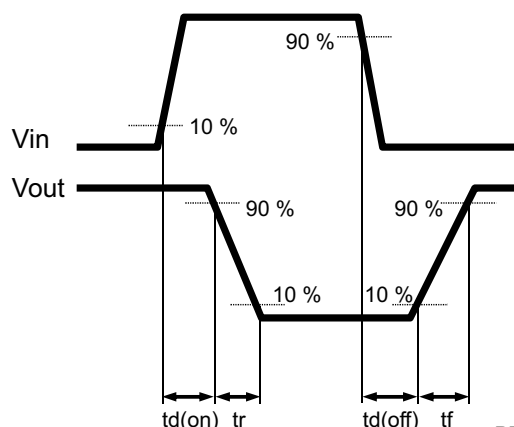
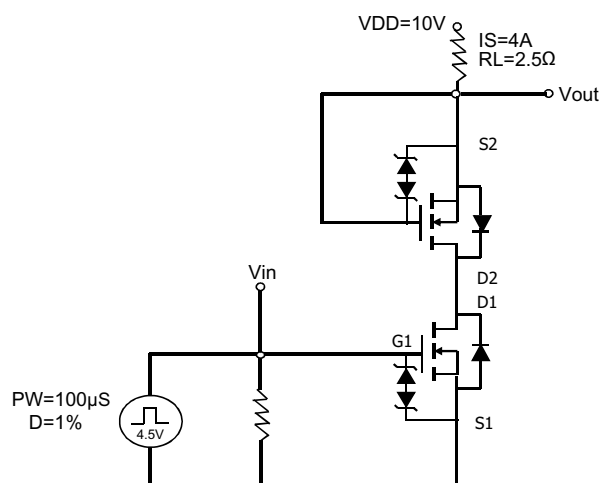
Notes: 1. Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) using the minimum recommended pad size (36μm copper).

2. t = 10ms, duty cycle = 1 %

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static parameters						
Source to source breakdown voltage	BV _{SSS}	I _S = 1mA, V _{GS} = 0V	12			V
Zero-gate voltage source current	I _{SSS}	V _{SS} = 10V, V _{GS} = 0V			1	μA
Gate to source leakage current	I _{GSS}	V _{SS} = 0V, V _{GS} = ±8V			±10	μA
Gate to source threshold voltage	V _{TH}	V _{S2S1} = 6V, I _{S1} = 2.3mA	0.35	0.77	1.4	V
		V _{S1S2} = 6V, I _{S2} = 2.3mA				
Source to source on-state resistance	R _{SS(on)}	V _{GS} = 4.5V, I _S = 3A	0.8	1.2	1.56	mΩ
		V _{GS} = 3.8V, I _S = 3A	0.9	1.3	1.69	
		V _{GS} = 3.1V, I _S = 3A	1.0	1.4	1.82	
		V _{GS} = 2.5V, I _S = 3A	1.1	1.6	3.20	
Input capacitance	C _{iss}	V _{SS} = 10V, V _{GS} = 0V, f = 1kHz		6315		pF
Output capacitance	C _{oss}			1393		
Reverse transfer capacitance	C _{rss}			1106		
Turn-on delay time (Note 3)	t _{d(on)}	V _{DD} = 10V, I _S = 4A, V _{GS} = 4.5V		1.2		μS
Turn-on rise time (Note 3)	t _r			5.7		
Turn-off delay time (Note 3)	t _{d(off)}			11		
Turn-off fall time (Note 3)	t _f			15.4		
Total gate charge (Note 3)	Q _g	V _{SS} = 10V, I _S = 10A, V _{GS} = 4.5V		75		nC
Gate1-source1 charge (Note 3)	Q _{g1s1}			15		
Gate1-source2 charge (Note 3)	Q _{g1s2}			36		
Diode forward voltage	V _{F(S-S)}	V _{G1S1} = 0V, V _{G2S2} = 4.5V, I _S = 3A			1.0	V
		V _{G1S1} = 4.5V, V _{G2S2} = 0V, I _S = 3A				

Notes: 3. When FET1 is measured, G2 and S2 are short-circuited.



REV:0

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Rating and Characteristic Curves (CMSBN12209-HF)

Fig.1 - I_s — V_{ss}

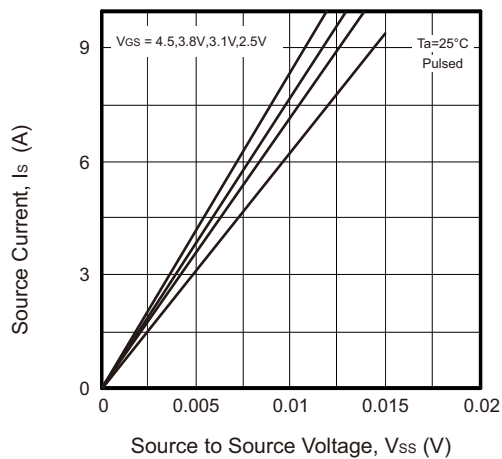


Fig.2 - I_s — V_{GS}

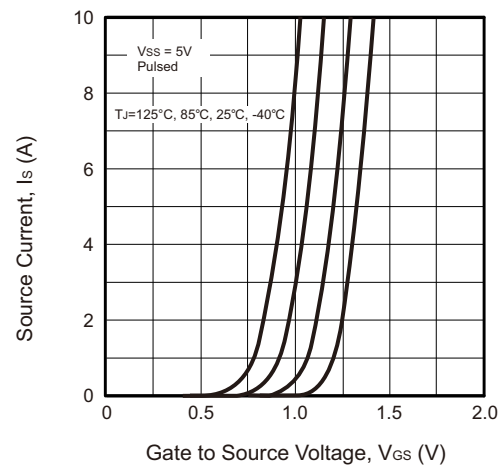


Fig.3 - $R_{SS(on)}$ — I_s

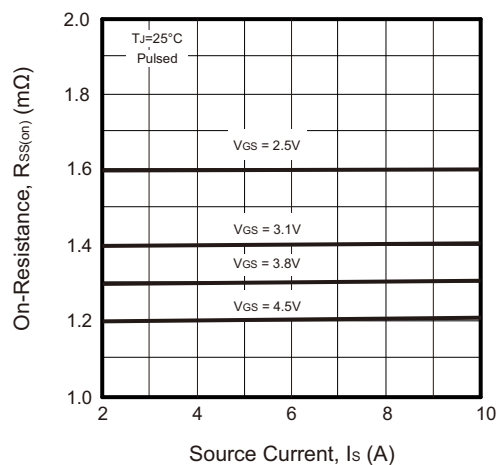


Fig.4 - $R_{SS(on)}$ — V_{GS}

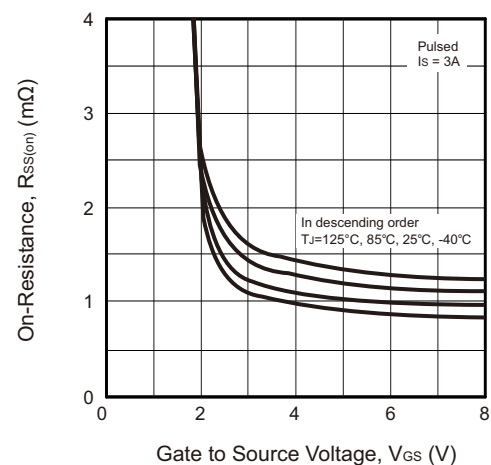


Fig.5 - I_F — V_F

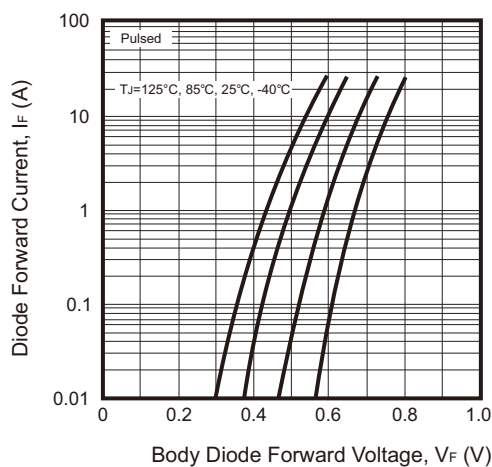
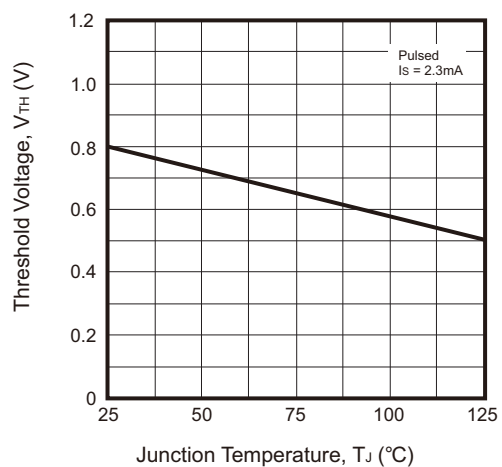


Fig.8 - Threshold Voltage



Rating and Characteristic Curves (CMSBN12209-HF)

Fig.7 - Capacitance

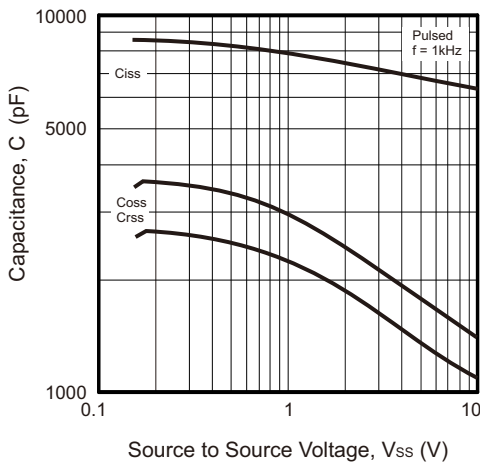


Fig.8 - Gate Charge

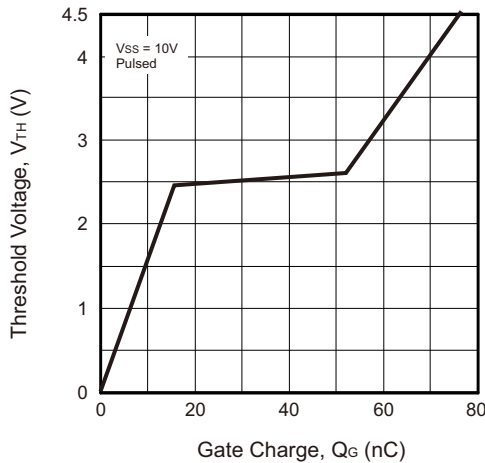


Fig.9 - Normalized Transient Thermal Impedance

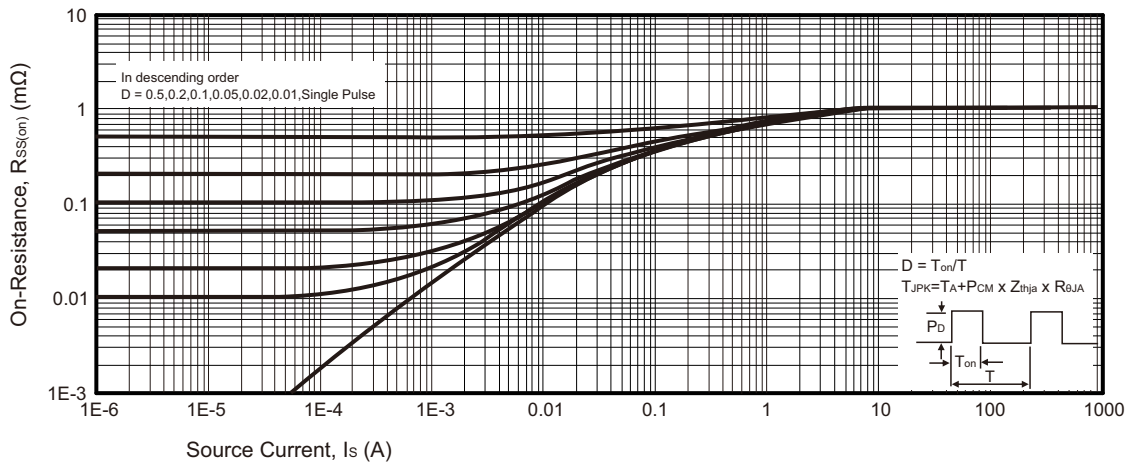


Fig.10 - Maximum Forward Biased Safe Operating Area

