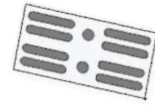


CMSBN8208A-HF

Dual N-Channel
RoHS Device
Halogen Free

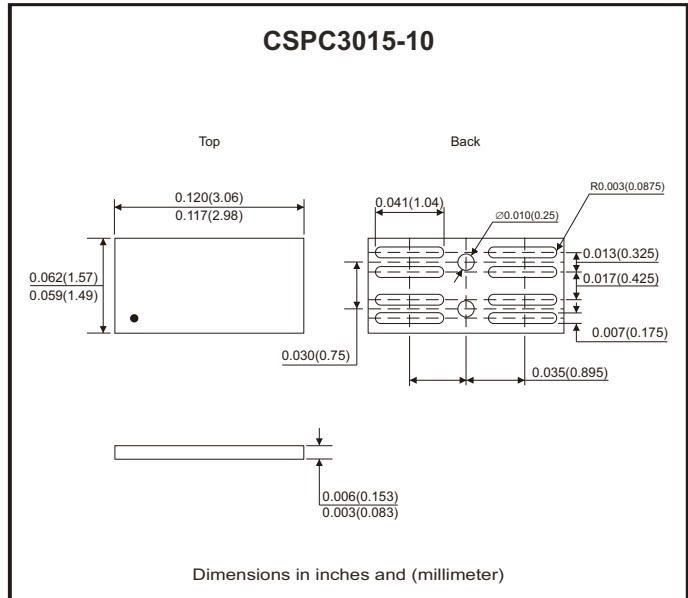


Features

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

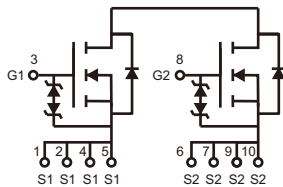
Mechanical data

- Case: CSPC3015-10, standard package, molded plastic.

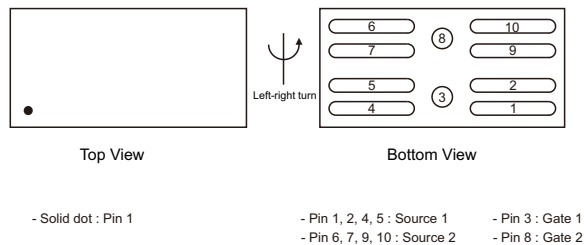


Circuit Diagram

- G : Gate
- S : Source



Pin Assignment



Maximum Ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

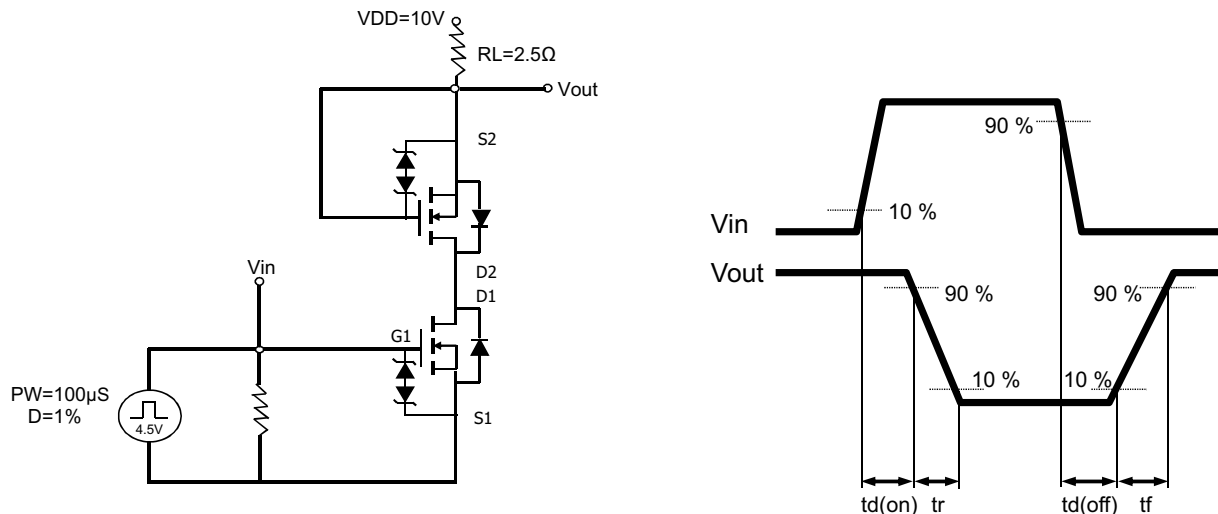
Parameter	Symbol	Value	Unit
Source to source voltage	V_{SSS}	12	V
Gate-source voltage	V_{GS}	± 8	V
Source current DC (Note 1)	I_S	14	A
Source current pulse (Note 1, 2)	I_{SP}	140	A
Total power dissipation (Note 1)	P_T	1.7	W
Channel temperature	T_{ch}	150	°C
Storage temperature range	T_{STG}	-55 to +150	

Notes: 1. Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) using the minimum recommended pad size (36 μm copper).
2. $t = 10\text{ms}$, duty cycle $\leq 1\%$

Electrical Characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static parameters						
Source to source breakdown voltage	BV_{SSS}	$I_S = 1\text{mA}, V_{GS} = 0\text{V}$	12			V
Zero-gate voltage source current	I_{SSS}	$V_{SS} = 12\text{V}, V_{GS} = 0\text{V}$			1	μA
Gate to source leakage current	I_{GSS}	$V_{SS} = 0\text{V}, V_{GS} = \pm 8\text{V}$			± 10	μA
Gate to source threshold voltage	V_{TH}	$V_{SS} = 10\text{V}, I_S = 1.11\text{mA}$	0.35	0.8	1.4	V
Source to source on-state resistance	$R_{SS(on)}$	$V_{GS} = 4.5\text{V}, I_S = 2\text{A}$	1.0	2.1	2.8	m Ω
		$V_{GS} = 3.8\text{V}, I_S = 2\text{A}$	1.1	2.2	2.9	
		$V_{GS} = 3.1\text{V}, I_S = 2\text{A}$	1.3	2.5	4.0	
		$V_{GS} = 2.5\text{V}, I_S = 2\text{A}$	1.6	2.9	6.15	
Input capacitance	C_{iss}	$V_{SS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{kHz}$		3530		pF
Output capacitance	C_{oss}			855		
Reverse transfer capacitance	C_{rss}			741		
Turn-on delay time (Note 1)	$t_{d(on)}$	$V_{DD} = 10\text{V}, R_L = 2.5\Omega, V_{GS} = 4.5\text{V}$		1.92		μS
Turn-on rise time (Note 1)	t_r			3.70		
Turn-off delay time (Note 1)	$t_{d(off)}$			16.6		
Turn-off fall time (Note 1)	t_f			11.2		
Total gate charge (Note 1)	Q_g	$V_{SS} = 20\text{V}, I_S = 7\text{A}, V_{GS} = 6\text{V}$		59.7		nC
Gate1-source1 charge (Note 1)	Q_{g1s1}			33.1		
Gate1-source2 charge (Note 1)	Q_{g1s2}			15.5		
Diode forward voltage (Note 2)	$V_{F(S-S)}$	$V_{GS} = 0\text{V}, I_S = 2\text{A}$			1.3	V

Notes: 1. When FET1 is measured, G2 and S2 are short-circuited.
 2. When FET1 is measured, FET2 is biased with $V_{G2S2}=4.5\text{V}$.



Typical Rating and Characteristic Curves (CMSBN8208A-HF)

Fig.1 - I_s — V_{ss}

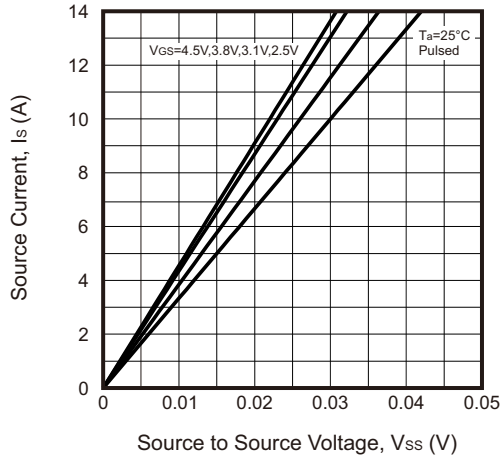


Fig.2 - I_s — V_{gs}

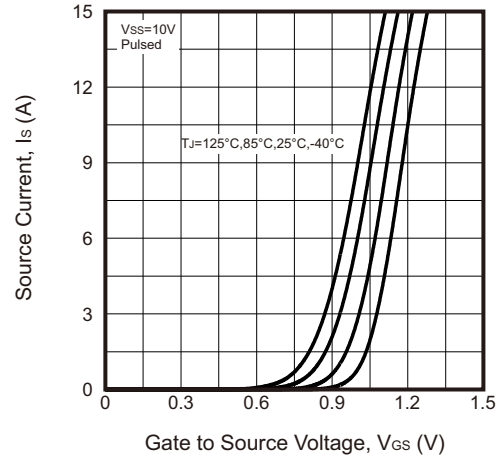


Fig.3 - $R_{ss(ON)}$ — I_s

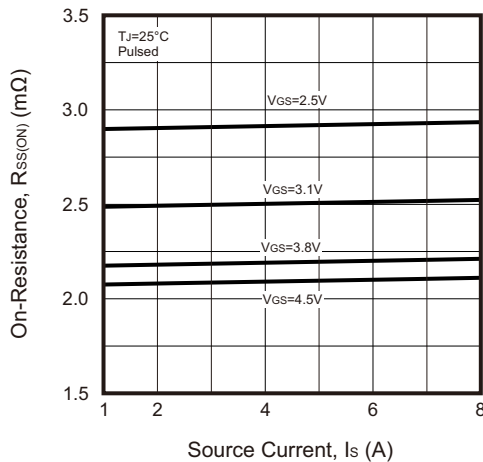


Fig.4 - $R_{ss(ON)}$ — V_{gs}

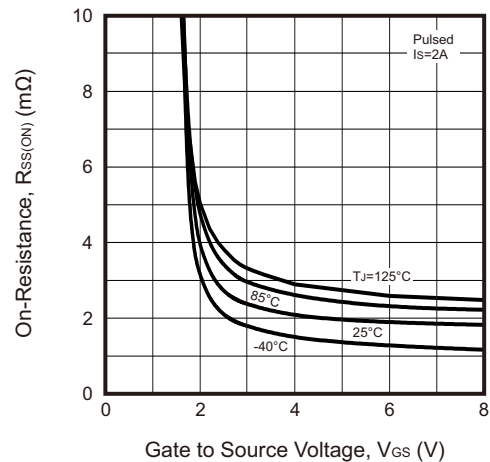


Fig.5 - I_F — V_F

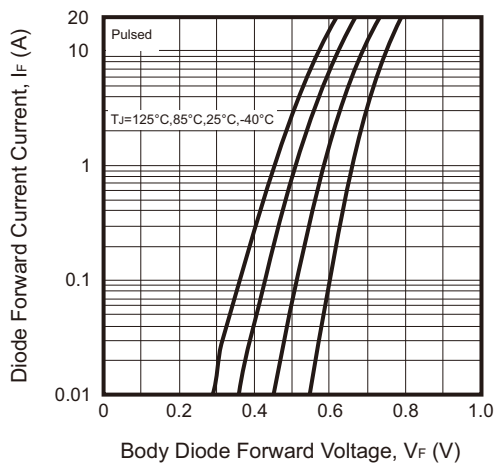
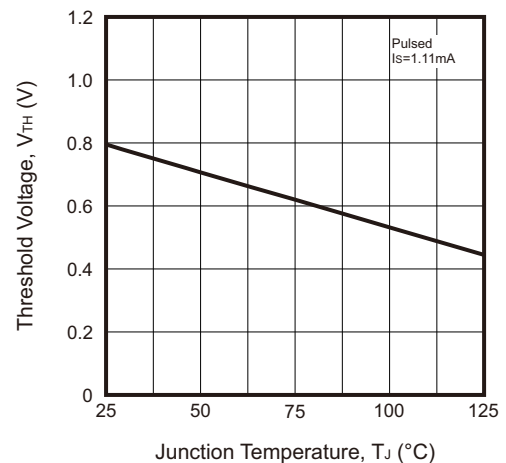


Fig.6 - Threshold Voltage



Typical Rating and Characteristic Curves (CMSBN8208A-HF)

Fig.7 - Capacitances

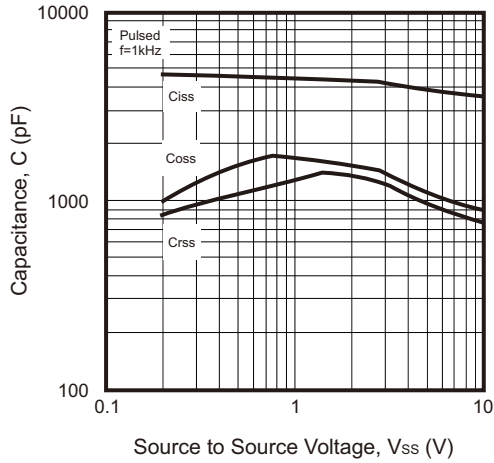


Fig.8 - Gate Charge

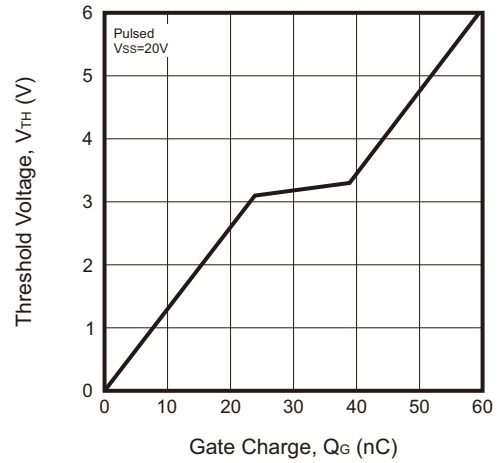
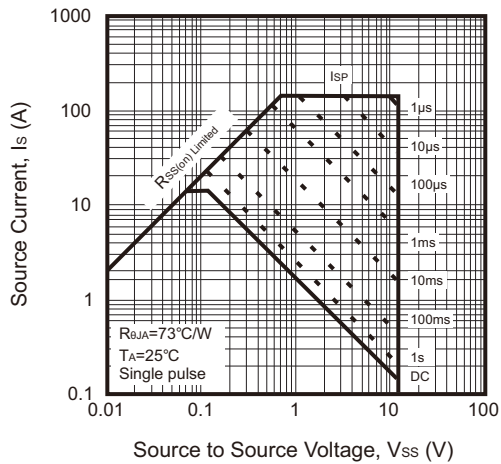
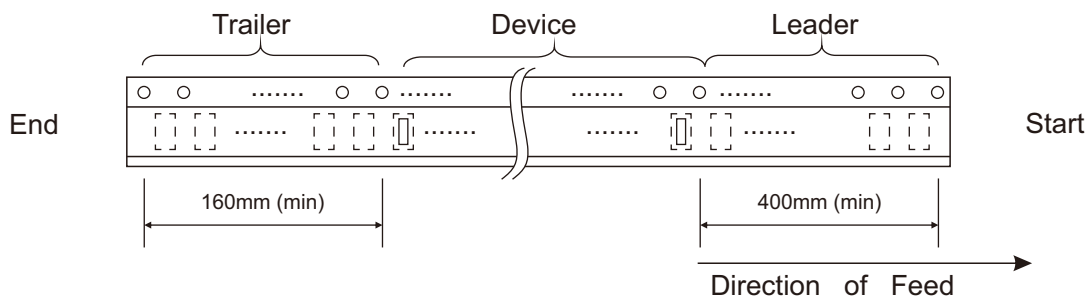
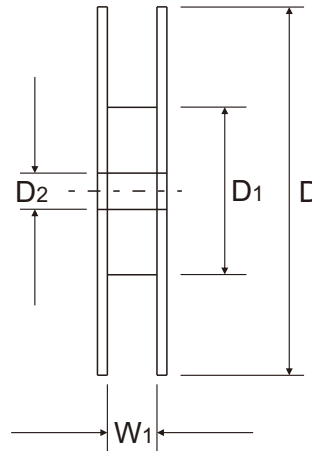
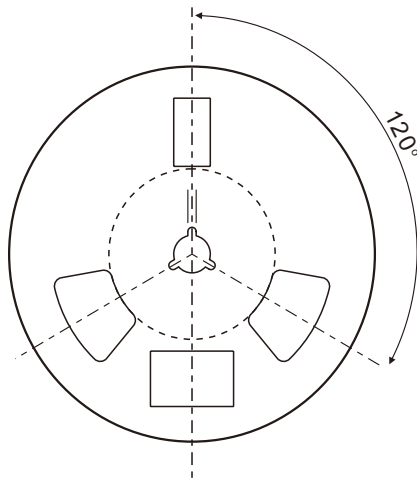
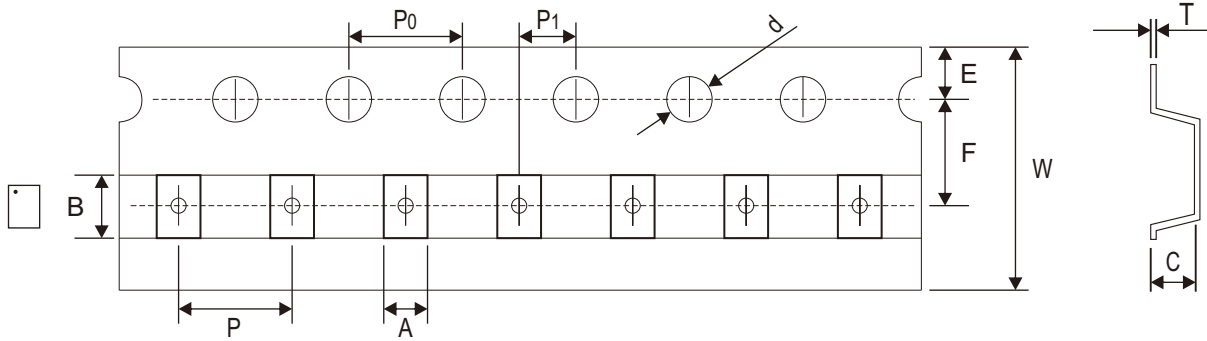


Fig.9 - Maximum Forward Biased Safe Operating Area



Reel Taping Specification



CSPC3015-10	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	1.67 ± 0.05	3.15 ± 0.05	0.23 ± 0.05	1.50 + 0.10	178.00 ± 2.00	55.00 ± 1.00	13.00 + 0.35 - 0.15
	(inch)	0.066 ± 0.002	0.124 ± 0.002	0.009 ± 0.002	0.059 + 0.004	7.008 ± 0.079	2.165 ± 0.039	0.512 + 0.014 - 0.006

CSPC3015-10	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 ± 0.15	8.65 + 4.70 - 0.65
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 ± 0.006	0.341 + 0.185 - 0.026

Marking Code

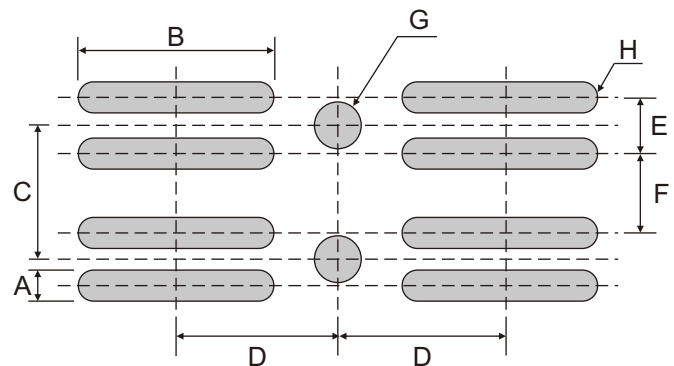
Part Number	Marking Code
CMSBN8208A-HF	8208A



XXXXX = Control code

Suggested P.C.B. PAD Layout

SIZE	CSPC3015-10	
	(mm)	(inch)
A	0.175	0.007
B	1.04	0.041
C	0.75	0.030
D	0.895	0.035
E	0.325	0.013
F	0.425	0.017
G	∅0.25	∅0.010
H	R0.0875	R0.003



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
CSPC3015-10	5,000	7