

20V N-Channel Trench Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	12mΩ@4.5V	8A
	17mΩ@2.5V	

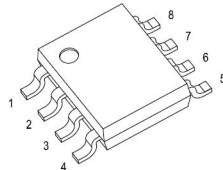
Features

- Very Low On-resistance $R_{DS(ON)}$
- Low C_{rSS}
- Fast switching
- Improved dv/dt capability

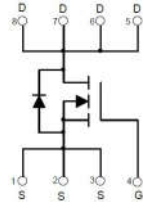
Applications

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

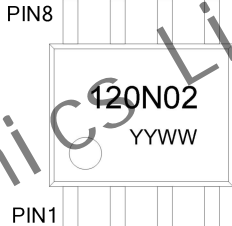
SOP-8



Schematic diagram



Marking



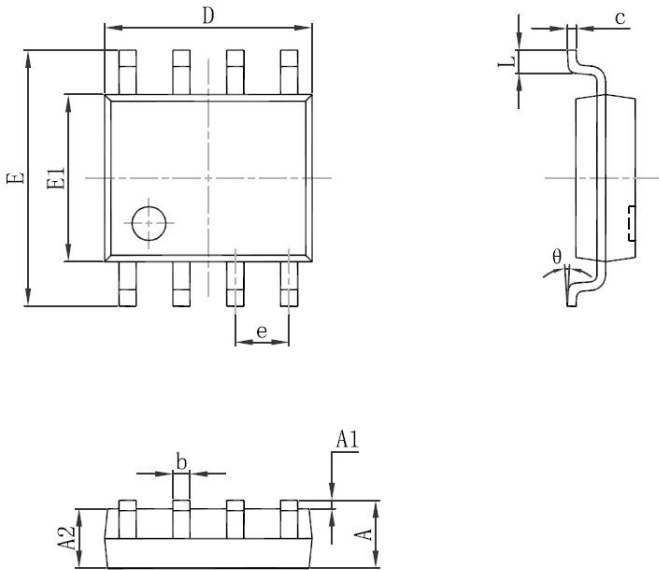
120N02	: Device Code
YY	: Year Code
WW	: Week Code

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

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current	I_D	8	A
Drain Current - Pulsed	I_{DM}	32	A
Power Dissipation	P_D	2	W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±0.1	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.65	1.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 5A		12	18	mΩ
		V _{GS} = 2.5V, I _D = 4A		17	25	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		865		pF
Output Capacitance	C _{oss}			105		
Reverse Transfer Capacitance	C _{rss}			55		
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GEN} = 5V, V _{DD} = 10V, I _D = 4A, R _G = 1Ω, R _L = 2.2Ω			10	ns
Turn-on Rise Time	t _r				20	
Turn-off Delay Time	t _{d(off)}				32	
Turn-off Fall Time	t _f				12	
Source - Drain Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 4A			1.2	V

Dimension
SOP8


Symbol	Dimensions		Dimensions	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	S°	0°	8°

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