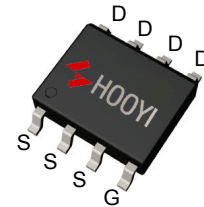


N-Channel Enhancement Mode MOSFET

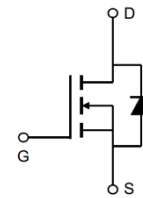
Feature

- 30V/12A
 $R_{DS(ON)} = 7.5\text{ m}\Omega(\text{typ.})@V_{GS} = 10\text{V}$
 $R_{DS(ON)} = 9.0\text{ m}\Omega(\text{typ.})@V_{GS} = 4.5\text{V}$
- Avalanche Rated
- Reliable and Rugged
- Lead Free Devices Available

Pin Description



SOP-8



N-Channel MOSFET

Applications

- Power Management in DC/DC Converter
- Switching application

Ordering and Marking Information

 S HY1203 YYXXXJWW G	Package Code S: SOP-8L Date Code YYXXX WW	Assembly Material G: lead Free Device
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Note: HOOYI lead-free products contain molding compounds/die attach materials and 100% matte tin plate Termination finish; which are fully compliant with RoHS. HOOYI lead-free products meet or exceed the lead-free requirements of IPC/JEDEC J-STD-020 for MSL classification at lead-free peak reflow temperature. HOOYI defines “Green” to mean lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight).

HOOYI reserves the right to make changes to improve reliability or manufacturability without notice, and Advise customers to obtain the latest version of relevant information to verify before placing orders.

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (Tc=25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		30	V
V _{GSS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Drain Current-Continuous	Tc=25°C	12	A
Mounted on Large Heat Sink				
I _{DM}	Pulsed Drain Current *	Tc=25°C	44	A
I _D	Continuous Drain Current	Tc=25°C	12	A
		Tc=70°C	9.6	A
P _D	Maximum Power Dissipation	Tc=25°C	2.5	W
		Tc=70°C	1.6	W
R _{θJC}	Thermal Resistance, Junction-to-Case		50	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient **		80	°C/W
E _{AS}	SinglePulsed-Avalanche Energy ***	L=0.3mH	30	mJ

Note: * Repetitive rating; pulse width limited by max.junction temperature.
 ** Surface mounted on FR-4 board.
 *** Limited by T_{Jmax} , starting T_J=25°C, L = 0.3mH, R_G = 25Ω, V_{GS}=10V.

Electrical Characteristics (Tc =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HY1203			Unit
			Min	Typ	Max	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250uA	30	-	-	V
I _{DSS}	Drain-to-Source Leakage Current	V _{DS} =30V, V _{GS} =0V	-	-	1	uA
		T _J =55°C	-	-	10	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250uA	1	2	3	V
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)*}	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =6A	-	6.2	7.5	mΩ
R _{DS(ON)*}	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =4A	-	7.4	9.5	mΩ
Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} =1A, V _{GS} =0V	-	0.7	1	V
t _{rr}	Reverse Recovery Time	I _{SD} =1A, dI _{SD} /dt=100A/us	-	14	-	ns
Q _{rr}	Reverse Recovery Charge		-	13	-	nC

Electrical Characteristics (Cont.) (T_c =25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	HY1203			Unit
			Min	Typ	Max	
Dynamic Characteristics						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1 MHz	-	1.5	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	2312	-	pF
C _{oss}	Output Capacitance					
C _{rss}	Reverse Transfer Capacitance					
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, R _G =3Ω, I _{DS} =6A, V _{GS} =10V	-	5	-	ns
T _r	Turn-on Rise Time					
t _{d(OFF)}	Turn-off Delay Time					
T _f	Turn-off Fall Time					
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} = 24V, V _{GS} = 4.5V, I _D = 6A,	-	12	-	nC
Q _{gs}	Gate-Source Charge					
Q _{gd}	Gate-Drain Charge					

Note: * Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%

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