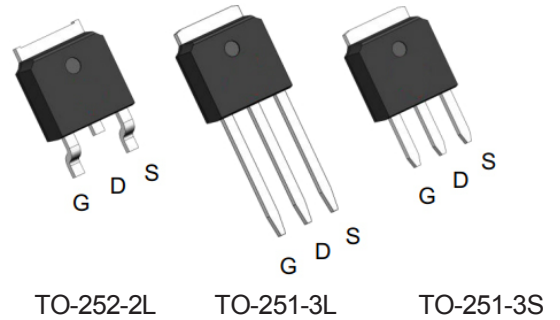


N-Channel Enhancement Mode MOSFET

Feature

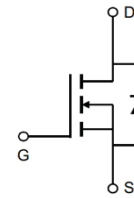
- 100V/67A
 $R_{DS(ON)} = 10m\Omega(\text{typ.}) @ V_{GS} = 10V$
 $R_{DS(ON)} = 12m\Omega(\text{typ.}) @ V_{GS} = 4.5V$
- 100% Avalanche Tested
- Reliable and Rugged
- Halogen Free and Green Devices Available (RoHS Compliant)

Pin Description



Applications

- Power Management for DC/DC



N-Channel MOSFET

Ordering and Marking Information

<p>D U V</p> <p>HY1910 HY1910 HY1910</p> <p>YYXXJWW G YYXXJWW G YYXXJWW G</p>	<p>Package Code D: TO-252-2L U: TO-251-3L V: TO-251-3S</p> <p>Date Code YYXX WW</p> <p>Assembly Material G: Halogen Free</p>
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Note: YIXIN lead-free products contain molding compounds/die attach materials and 100% matte tin plate Termination finish; which are fully compliant with RoHS. YIXIN 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. YIXIN 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).

YIXIN reserves the right to make changes, corrections, enhancements, modifications, and improvements to this product and/or to this document at any time without notice.

HY1910D/U/V

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (Tc=25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		100	V
V _{GSS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _S	Source Current-Continuous(Body Diode)	Tc=25°C	67	A
Mounted on Large Heat Sink				
I _{DM}	Pulsed Drain Current *	Tc=25°C	240	A
I _D	Continuous Drain Current	Tc=25°C	67	A
		Tc=100°C	47	A
P _D	Maximum Power Dissipation	Tc=25°C	104	W
		Tc=100°C	52	W
R _{θJC}	Thermal Resistance, Junction-to-Case		1.4	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient **		110	°C/W
E _{AS}	Single Pulsed-Avalanche Energy ***	L=0.3mH	287	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	HY1910			Unit
			Min	Typ.	Max	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	100	-	-	V
I _{DSS}	Drain-to-Source Leakage Current	V _{DS} =100V, V _{GS} =0V	-	-	1	μA
		T _J =125°C	-	-	50	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1	1.8	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} =30A	-	10	13	mΩ
		V _{GS} =4.5V, I _{DS} =30A	-	12	16	
Diode Characteristics						
V _{SD*}	Diode Forward Voltage	I _{SD} =30A, V _{GS} =0V	-	0.86	1.1	V
t _{rr}	Reverse Recovery Time	I _{SD} =30A, dI _{SD} /dt=100A/μs	-	46	-	ns
Q _{rr}	Reverse Recovery Charge		-	102	-	nC

HY1910D/U/V

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

Symbol	Parameter	Test Conditions	HY1910			Unit
			Min	Typ.	Max	
Dynamic Characteristics						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1 MHz	-	1.0	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V, Frequency=1.0MHz	-	2846	-	pF
C _{oss}	Output Capacitance		-	255	-	
C _{rss}	Reverse Transfer Capacitance		-	115	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =50V, R _G =4Ω, I _{DS} =30A, V _{GS} =10V	-	25	-	ns
T _r	Turn-on Rise Time		-	32	-	
t _{d(OFF)}	Turn-off Delay Time		-	19	-	
T _f	Turn-off Fall Time		-	39	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =80V, V _{GS} =10V, I _D =30A	-	77.7	-	nC
Q _{gs}	Gate-Source Charge		-	5.5	-	
Q _{gd}	Gate-Drain Charge		-	28.9	-	

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

HY1910D/U/V

Typical Operating Characteristics

Figure 1: Power Dissipation

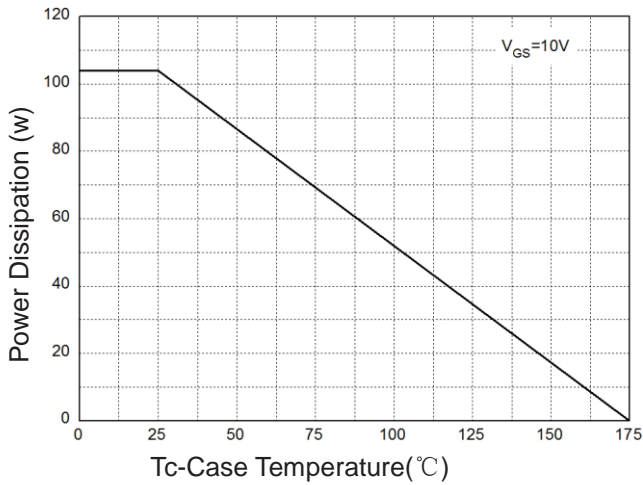


Figure 2: Drain Current

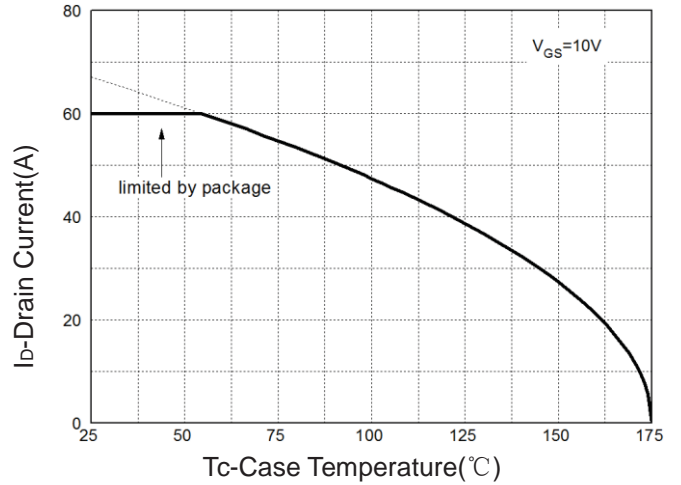


Figure 3: Safe Operation Area

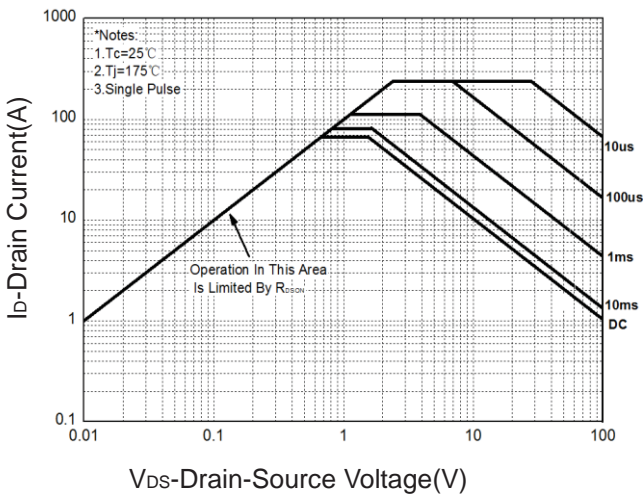


Figure 4: Thermal Transient Impedance

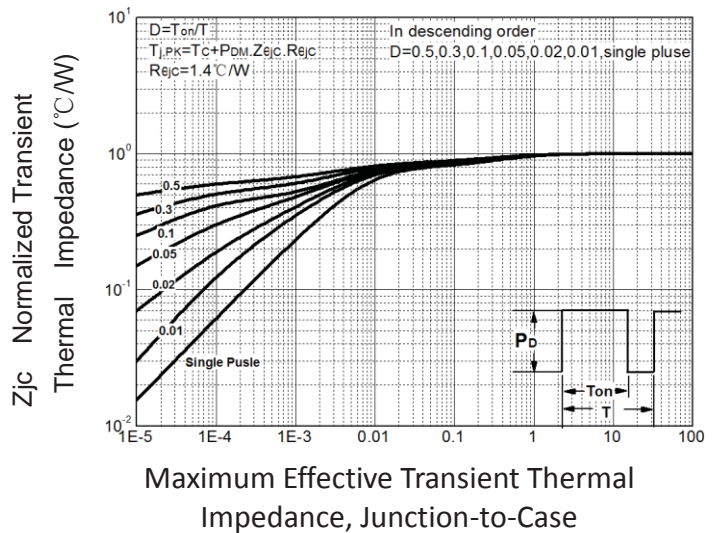


Figure 5: Output Characteristics

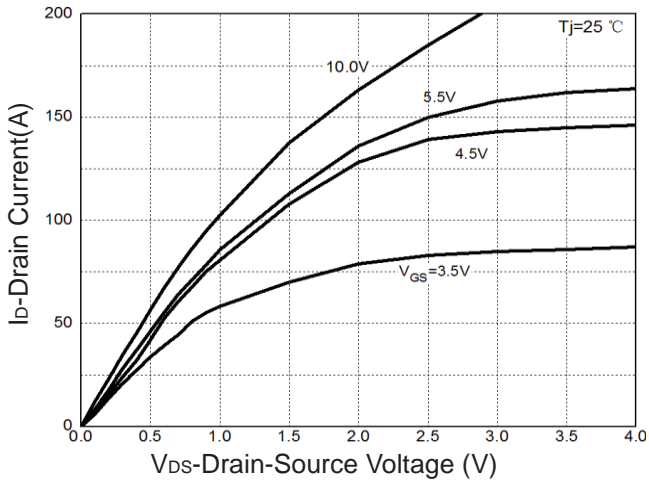
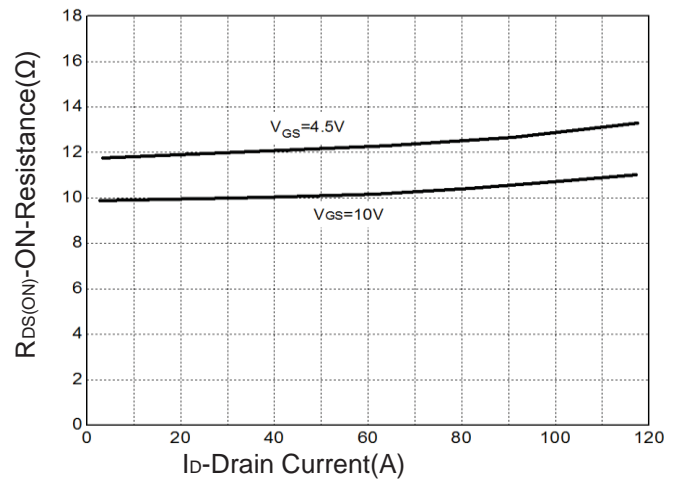


Figure 6: Drain-Source On Resistance



Typical Operating Characteristics(Cont.)

Figure 7: On-Resistance vs. Temperature

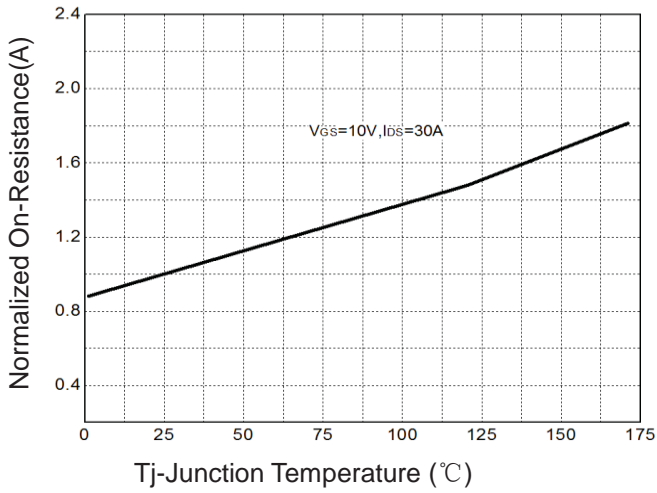


Figure 8: Source-Drain Diode Forward

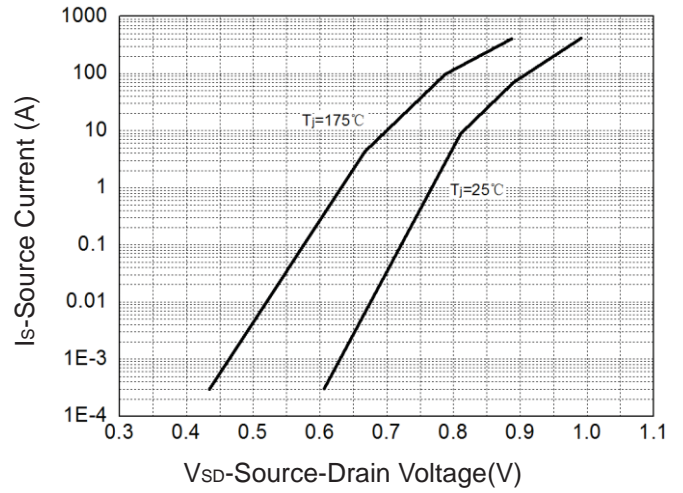


Figure 9: Capacitance Characteristics

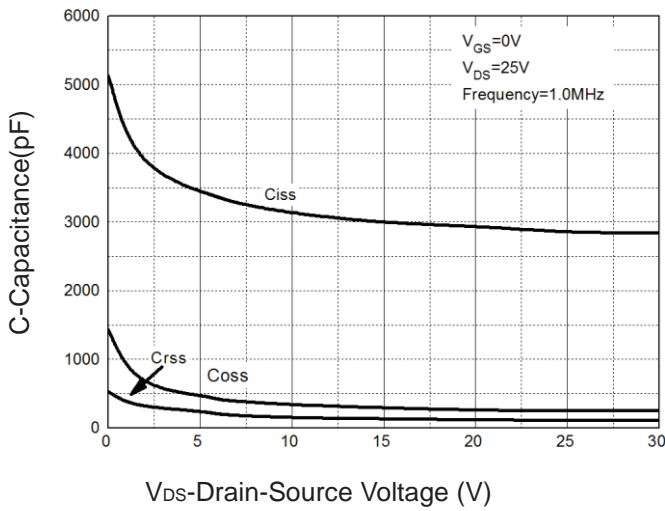


Figure 10: Gate Charge Characteristics

