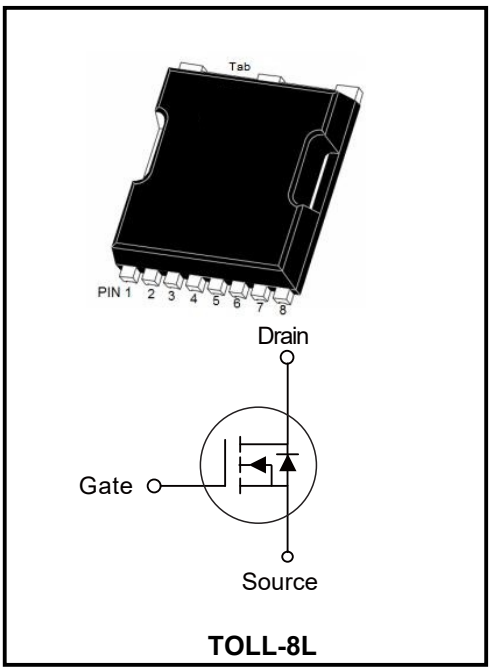
40V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	200A
V_{DSS}	40V
R_{DSON}-typ(@V_{GS}=10V)	< 2.5mΩ(Type:1.9 mΩ)



Features

♦YFW-SGT technology

Application

♦BMS
♦BLDC
♦UPS

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	40	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=25℃	I_D	200	A
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=100℃	I_D	130	A
Pulsed Drain Current	I_{DM}	600	A
Single Pulse Avalanche Energy	E_{AS}	525	mJ
Avalanche Current	I_{AS}	35	A
Power Dissipation @T_C=25℃	P_D	130	W
Thermal Resistance Junction-ambient [1]	$R_{\theta JA}$	35	°C/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.5	°C/W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	**V(BR)DSS**	40	47	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=40V , V_{GS}=0V	**I_{DSS}**	-	-	1.0	**μA**
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	**I_{GSS}**	-	-	±100	**nA**
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	**$V_{GS(th)}$**	1.0	1.5	2.5	**V**
Static Drain-Source on-Resistance	V_{GS}=10V, I_D=30A	**$R_{DS(ON)}$**	-	1.9	2.5	**mΩ**
	V_{GS}=4.5V, I_D=20A		-	2.7	4.0	
Input Capacitance	V_{DS}=20V V_{GS}=0V f=1.0MHz	**C_{iss}**	-	3162	-	**pF**
Output Capacitance		**C_{oss}**	-	1099	-	
Reverse Transfer Capacitance		**C_{rss}**	-	157	-	
Total Gate Charge	V_{DS}=20V V_{GS}=10V I_D=75A	**Q_g**	-	95	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	15	-	
Gate-Drain("Miller") Charge		**Q_{gd}**	-	11	-	
Turn-on delay time	V_{DD}=20V I_D=75A R_G=1.6Ω V_{GS}=10V	**$t_{d(on)}$**	-	12.5	-	**ns**
Turn-on Rise Time		**T_r**	-	7	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	50	-	
Turn-Off Fall Time		**t_f**	-	8.5	-	
Maximum Continuous Drain to Source Diode Forward Current		**I_S**	-	-	140	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I_{SM}**	-	-	560	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=30A	**V_{SD}**	-	-	1.2	**V**
Body Diode Reverse Recovery Time	T_J=25℃,I_F=I_S, dI/dt=100A /μs	**t_{rr}**	-	31	-	**ns**
Body Diode Reverse Recovery Charge		**Q_{rr}**	-	110	-	**nC**

Note :
1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.
2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3、The EAS data shows Max. rating . The test condition is VDD =32V,VGS =10V,L=0.1mH,IAS =35A
4、The power dissipation is limited by 150℃ junction temperature
5、The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

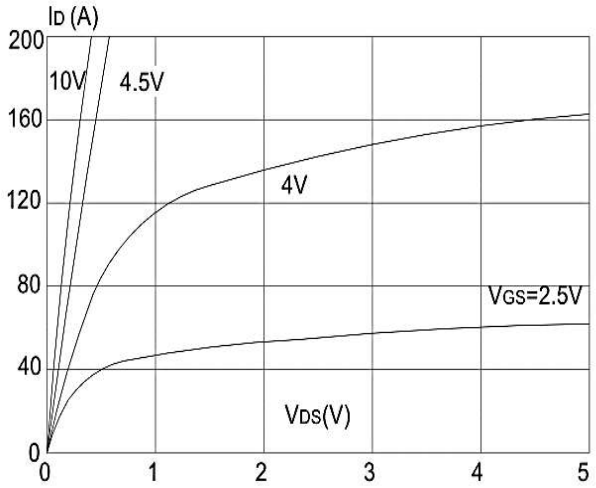


Figure1: Output Characteristics

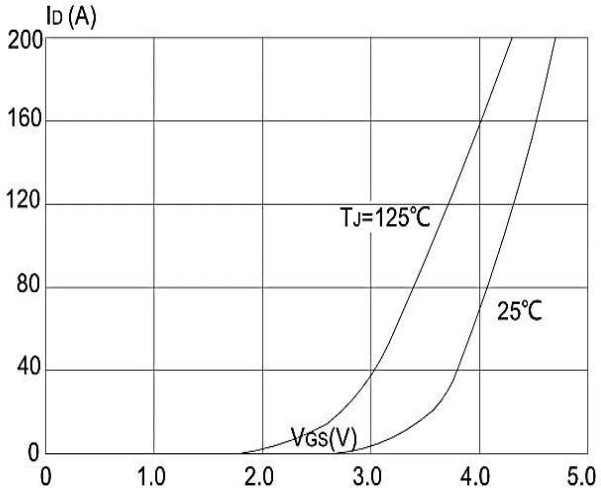


Figure 2: Typical Transfer Characteristics

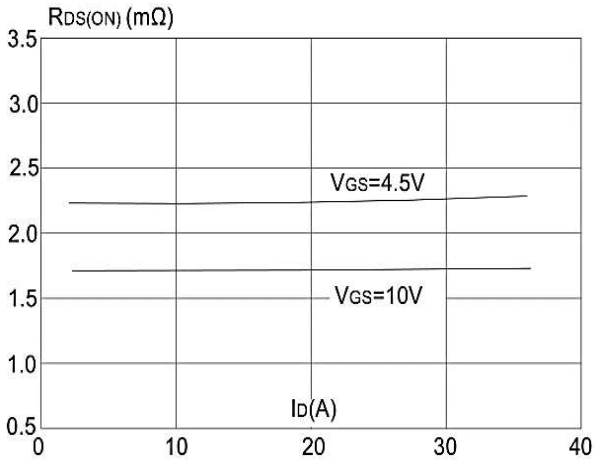


Figure 3:On-resistance vs. Drain Current

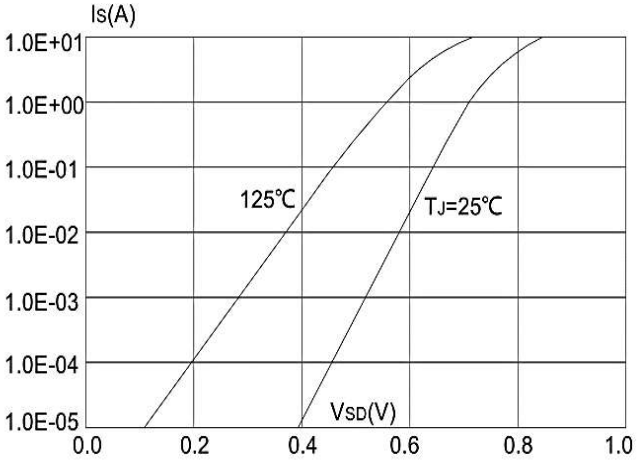


Figure 4: Body Diode Characteristics

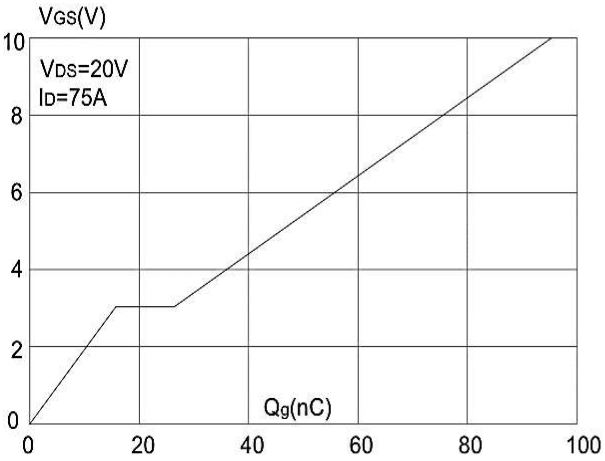


Figure 5: Gate Charge Characteristics

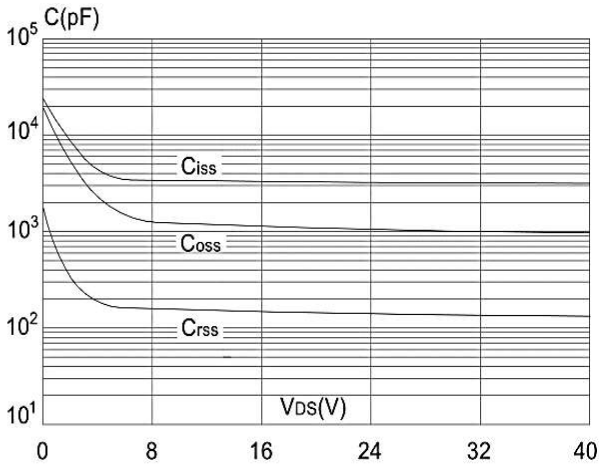


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

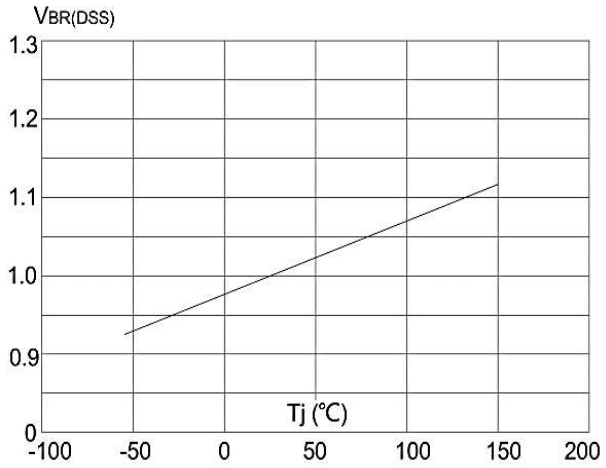


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

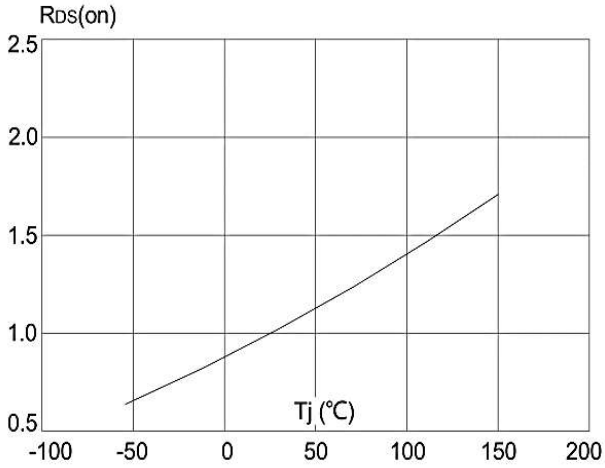


Figure 8: Normalized on Resistance vs Junction Temperature

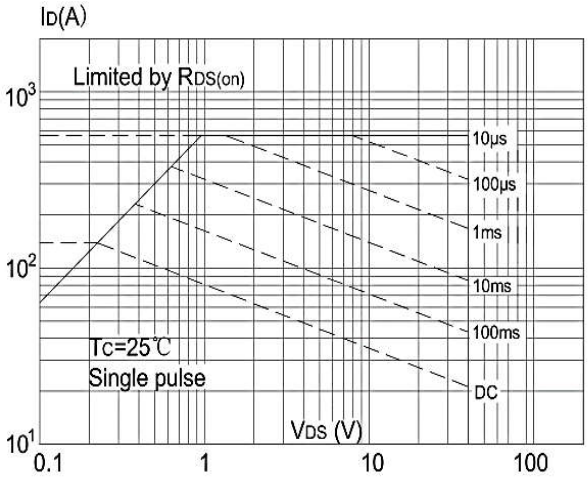


Figure 9: Maximum Safe Operating Area

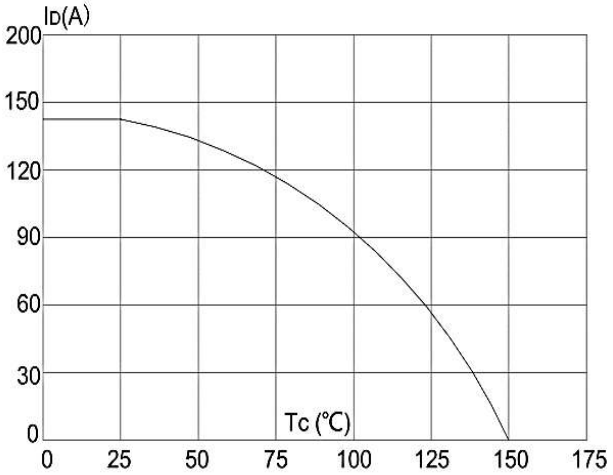


Figure 10: Maximum Continuous Drain Currentvs. Case Temperature

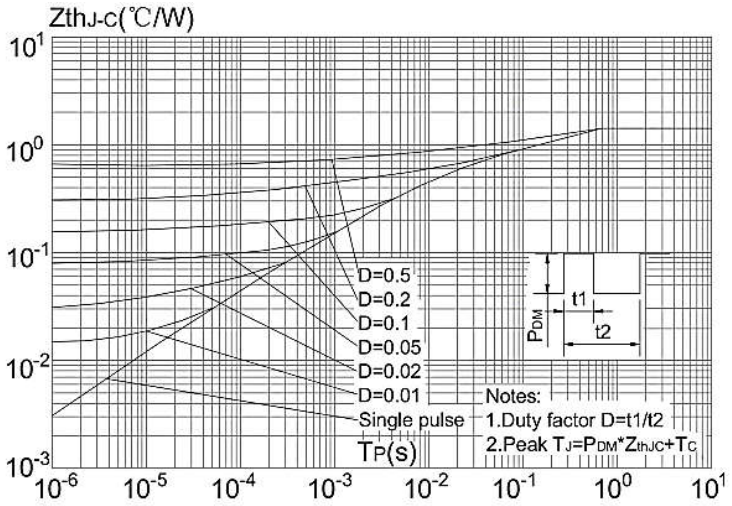
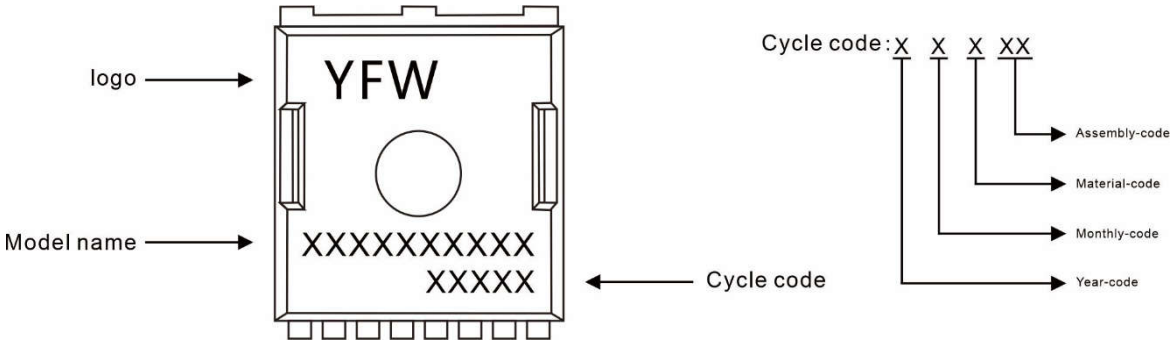


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Cas

Marking Diagram

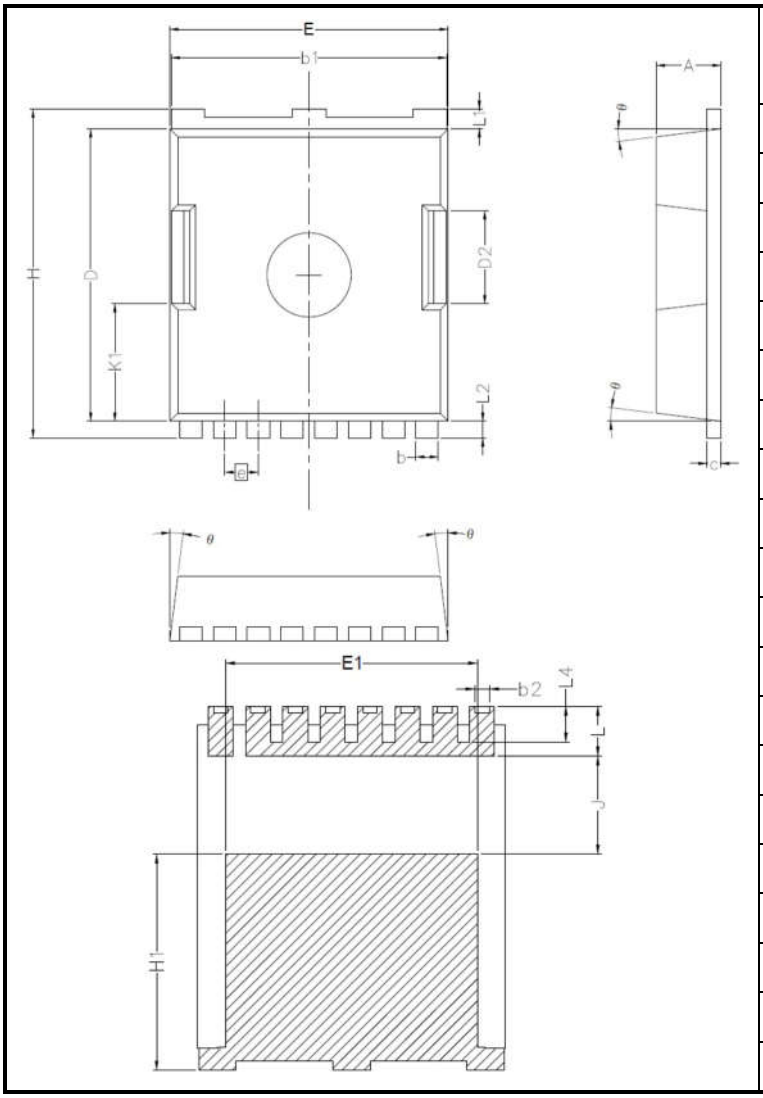


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG200N04TL	TOLL-8L	-	2000pcs/reel	4000pcs/box 20000pcs/Carton

Package Dimensions

TOLL-8L



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.087	0.095
b	0.70	0.90	0.028	0.035
b1	9.70	9.90	0.382	0.390
b2	0.42	0.50	0.017	0.020
c	0.40	0.60	0.016	0.024
D	10.28	10.58	0.405	0.417
D2	3.10	3.50	0.122	0.138
E	9.70	10.10	0.382	0.398
E1	7.90	8.30	0.311	0.327
e	1.20BSC		0.047BSC	
H	11.48	11.88	0.452	0.468
H1	6.75	7.15	0.266	0.281
N	8		0.315	
J	3.00	3.30	0.118	0.130
K1	3.98	4.38	0.157	0.172
L	1.40	1.80	0.055	0.071
L1	0.60	0.80	0.024	0.032
L2	0.50	0.70	0.020	0.028
L4	1.00	1.30	0.04	0.051
θ	4°	10°	4°	10°

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