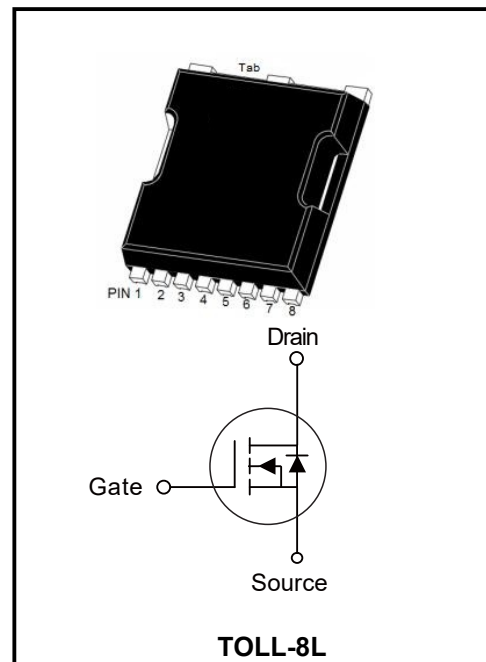


150V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	300A
V_{DSS}	150V
$R_{DS(on)-typ}(@V_{GS}=10V)$	$<3.5m\Omega$ (Typ:3.0 m Ω)



FEATURES

- ♦ **YFW-SGT technology**
- ♦ Surface-mounted package Advnced
- ♦ terch cell design Super trench

APPLICATIONS

- ♦ High power system inverter
- ♦ Light electric vehicles
- ♦ BMS
- ♦ Drones

ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	150	V
Gate - Source Voltage	V_{GS}	± 25	V
Drain Current (DC) * $T_c = 25^\circ\text{C}, V_{GS} = 10\text{V}$	I_D	300	A
Drain Current (DC) * $T_c = 100^\circ\text{C}, V_{GS} = 10\text{V}$		220	A
Drain Current (Pulsed)***	I_{DM}	680	A
Drain power dissipation	P_{tot}	375	W
Operation and storage temperature	T_{STG}, T_J	-55 to +175	$^\circ\text{C}$
Single Pulsed Avalanche Energy $V_{DD}=100\text{V}, L=1.0\text{mH}$	E_{AS}	1250	mJ
Thermal Resistance, Junction-case**	$R_{\theta JC}$	0.40	$^\circ\text{C/W}$
Thermal Resistance, Junction-ambient**	$R_{\theta JA}$	32.8	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	BV_{DSS}	150	-	-	V
Gate -Threshold Voltage	$V_{DS}=V_{GS}$, $I_D=250\mu A$	$V_{GS(th)}$	2	-	4	V
Drain Leakage Current	$V_{DS} = 120V$, $V_{GS} = 0V$	I_{DSS}			1	μA
Gate-Source Forward Leakage	$V_{GS}=\pm 25V$	I_{GSS}	-	-	± 100	nA
Drain-source on-state resistance ^a	$V_{GS}=10V$, $I_{DS}=50A$	$R_{DS(ON)}$	-	3.0	3.5	m Ω
	$V_{GS} = 6V$, $I_{DS} = 25A$			4.0	5.0	
Input Capacitance	$V_{GS}=0V$ $V_{DS}=75V$ Frequency = 1 MHz f=1MHz	C_{iss}	-	11320	-	pF
Output Capacitance		C_{oss}		870	-	
Reverse Transfer Capacitance ^b		C_{rss}	-	80	-	
Turn-on delay time	$V_{DS} = 75V$ $V_{GEN} = 10V$ $R_G = 3.9\Omega$ $R_L = 1.5\Omega$ $I_{DS} = 50A$	$t_{d(on)}$	-	24	-	ns
Rise Time		T_r	-	70	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	112	-	
Fall Time		t_f	-	75	-	
Total Gate Charge	$V_{DS} = 75V$ $V_{GS} = 10V$ $I_{DS} = 50A$	Q_g	-	158	-	nC
Gate-Source Charge		Q_{gs}	-	48	-	
Gate-Drain Charge		Q_{gd}	-	39	-	
Continuous Source Current	$T_C=25^{\circ}\text{C}$	I_S	-	-	300	A
Diode Forward Voltage ^a	$V_{GS}=0V$, $I_S=50A$	V_{SD}	-	-	1.3	V
Reverse Recovery Time	$I_{DS} = 50A$, $V_{GS} = 0V$ $di_{SD}/dt = 100A/\mu s$	t_{rr}	-	115	-	ns
Reverse Recovery Charge		Q_{rr}	-	480	-	nC

Notes:

* Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

** Surface Mounted on minimum footprint pad area.

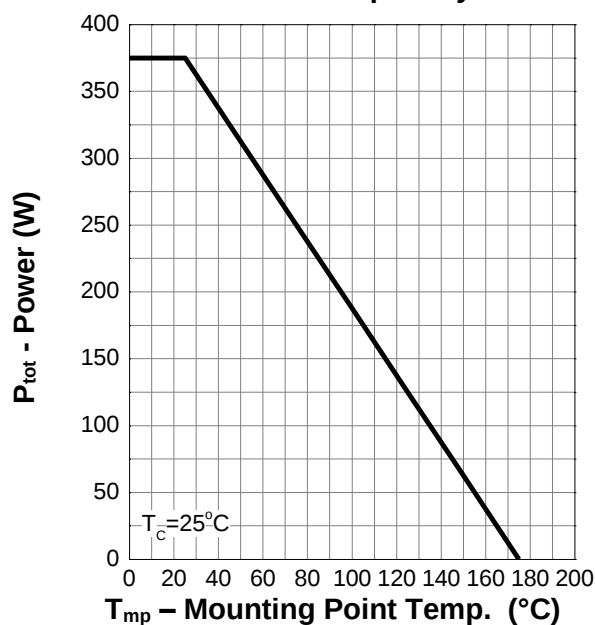
*** Limited by bonding wire

a:Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

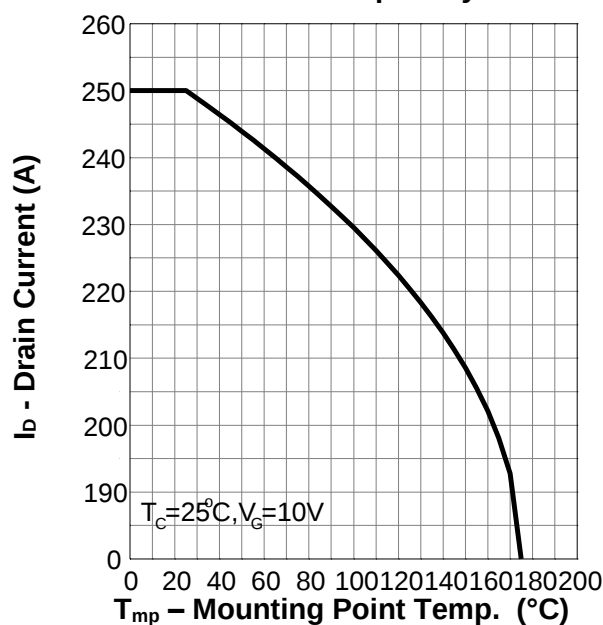
b:Guaranteed by design, not subject to production testing

TYPICAL CHARACTERISTICS

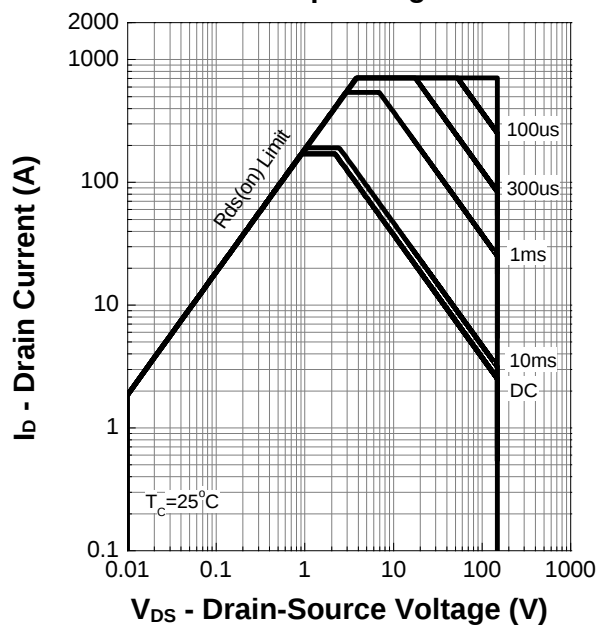
Power Capability



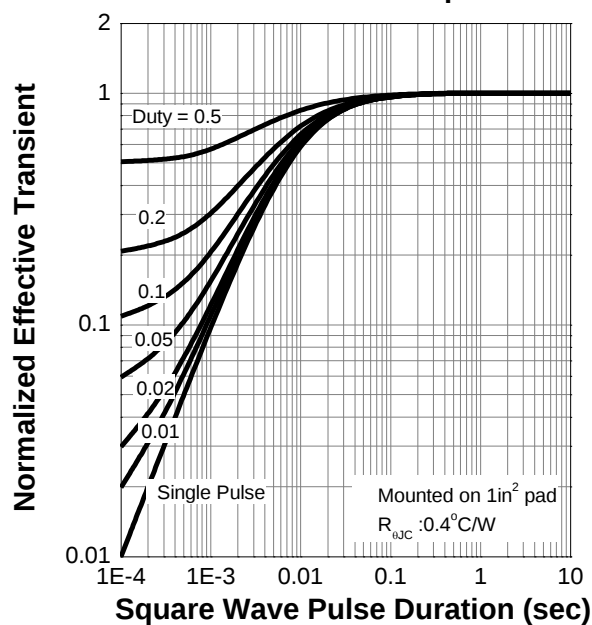
Current Capability



Safe Operating Area

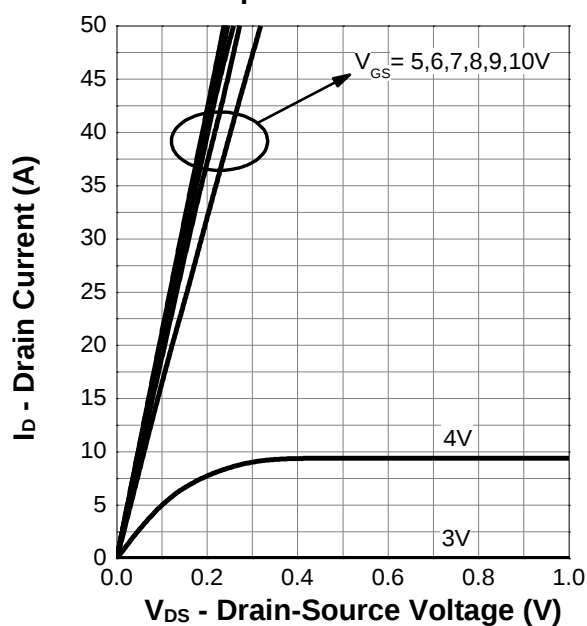


Transient Thermal Impedance

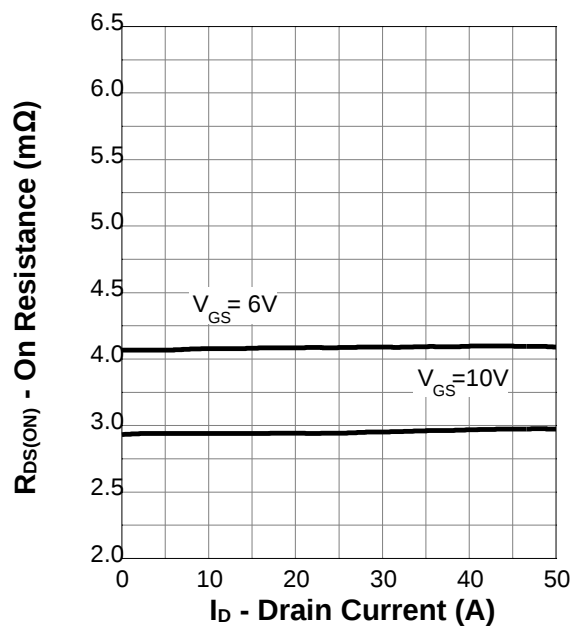


TYPICAL CHARACTERISTICS(Cont.)

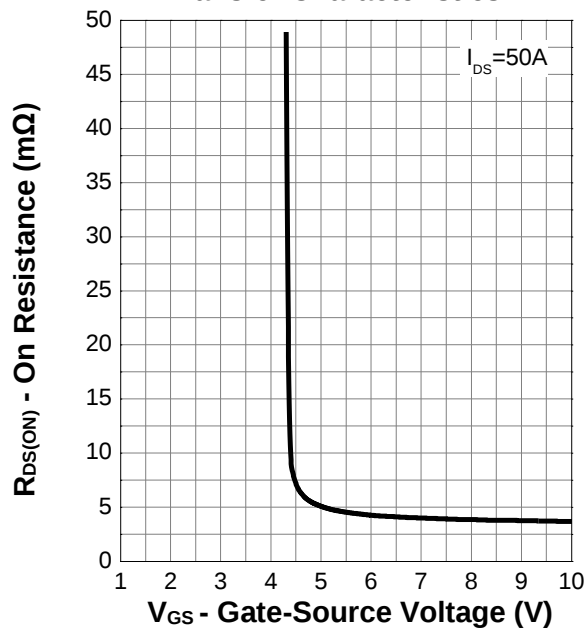
Output Characteristics



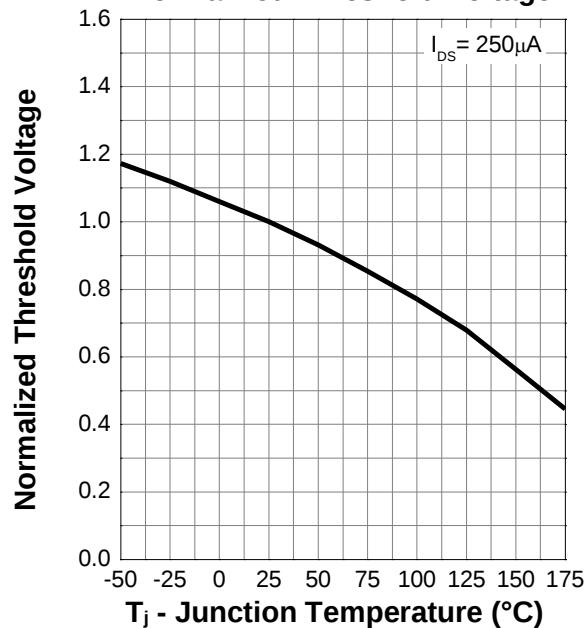
On Resistance



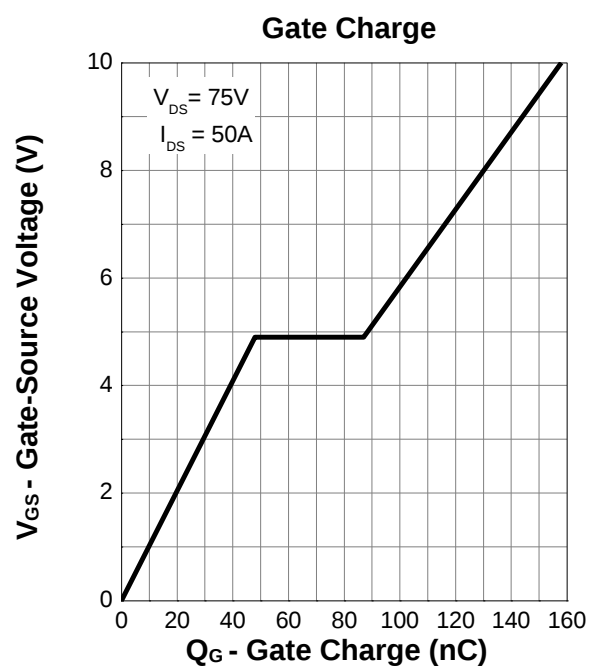
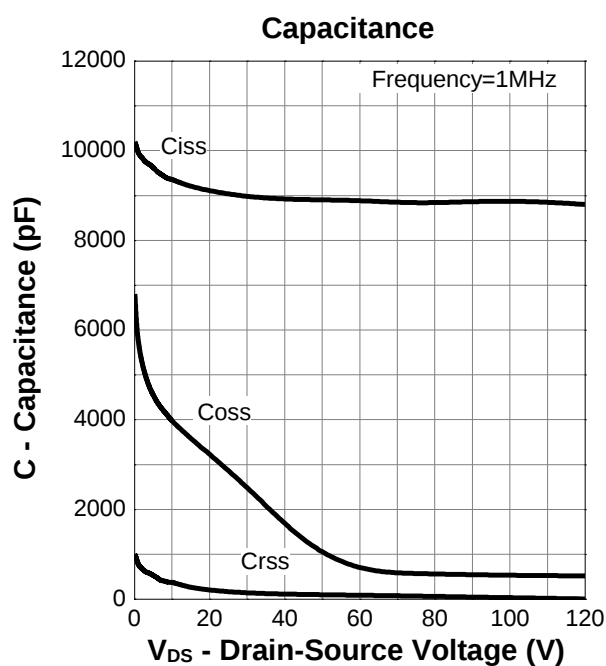
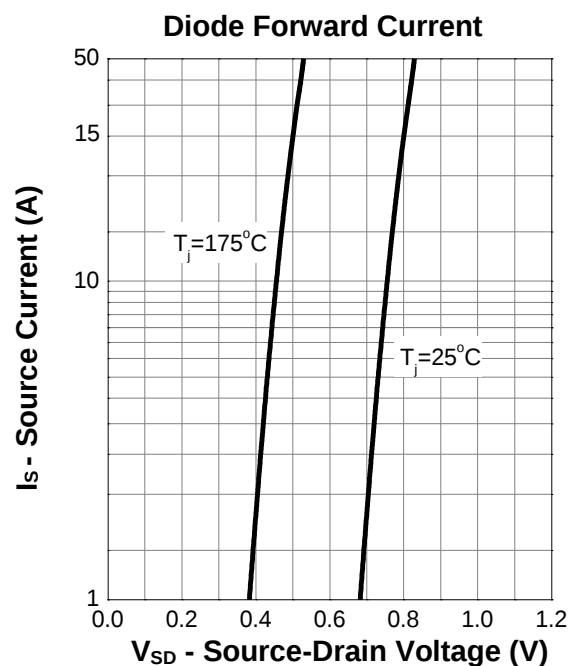
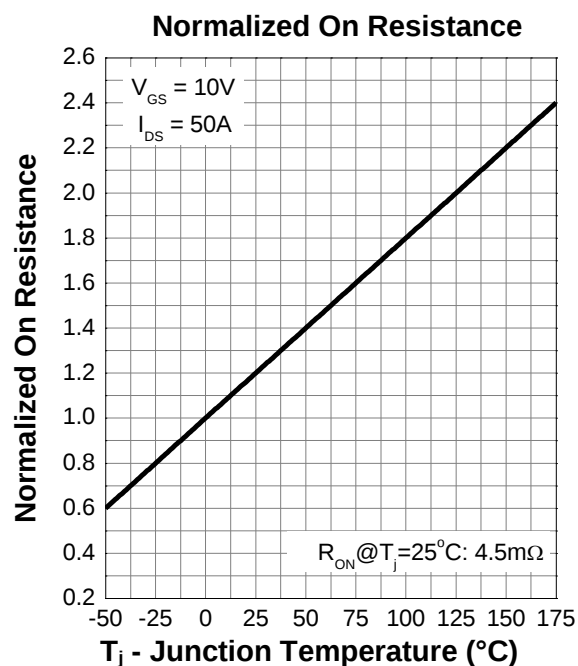
Transfer Characteristics



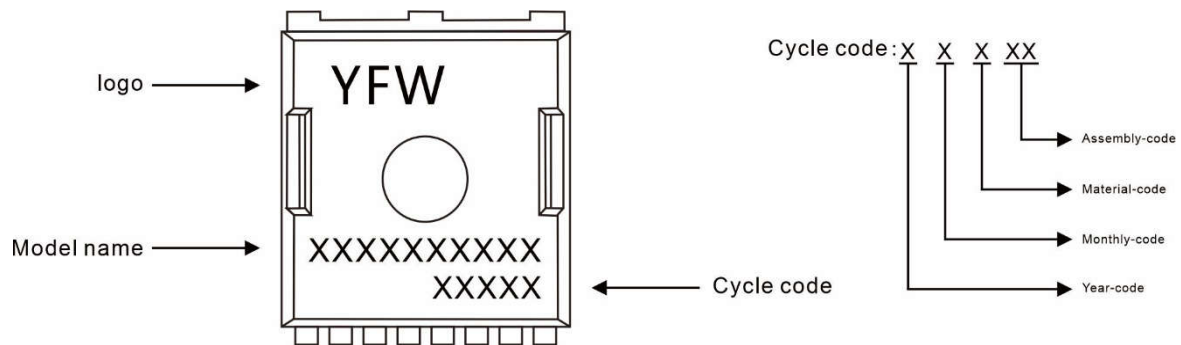
Normalized Threshold Voltage



TYPICAL CHARACTERISTICS(Cont.)



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG300N15TL	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°

Disclaimer

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