

Description:

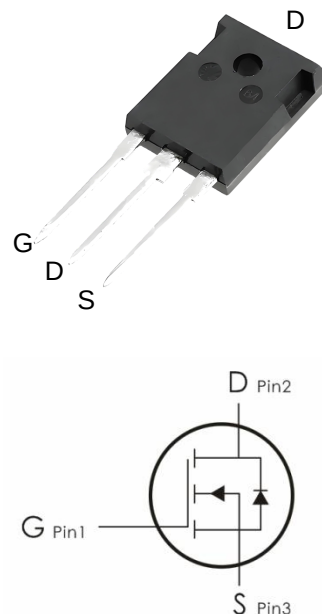
This N-Channel MOSFET uses advanced SGT technology and

design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=150V, I_D=150A, R_{DS(on)} < 6m\Omega @ V_{GS}=10V$ (Typ: $5m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density SGT technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOG150N15T	150N15T	TO- 247	30 pcs/Tube

Absolute Maximum Ratings: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Continuous Drain Current ¹	150	A
	Continuous Drain Current- $T_C=100^\circ C$ ¹	105	
I_{DM}	Pulsed Drain Current ²	600	
P_D	Power Dissipation	291	W
E_{AS}	Single pulse avalanche energy ³	1944	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.43	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	55	$^\circ C/W$

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	150	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =150V	---	---	10	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	2	3	4	V
R _{DS(ON)}	Drain-Source On Resistance ⁴	V _{GS} =10V, I _D =20A	---	5	6	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =75V, V _{GS} =0V, f=1MHz	---	9000	---	pF
C _{oss}	Output Capacitance		---	529	--	
C _{rss}	Reverse Transfer Capacitance		---	17	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =75V, I _D =20A, R _{ENG} =3 Ω ,V _{GS} =10V	---	22	---	ns
t _r	Rise Time		---	41	---	ns
t _{d(off)}	Turn-Off Delay Time		---	66	---	ns
t _f	Fall Time		---	33	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =75V, I _D =20A	---	130	---	nC
Q _{gs}	Gate-Source Charge		---	29	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	20	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =1A	---	---	1	V
I _S	Continuous Drain Current	V _D =V _G =0V	---	---	150	A
I _{SM}	Pulsed Drain Current		---	---	600	A
T _{rr}	Reverse Recovery Time	I _F =15A, T _J =25 °C	---	98	---	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/us	---	316	---	nC

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. EAS condition : $T_J=25^{\circ}C$, $V_{DD}=75V$, $V_G=10V$, $L=0.1mH$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Characteristics: ($T_C=25^{\circ}C$ unless otherwise noted)

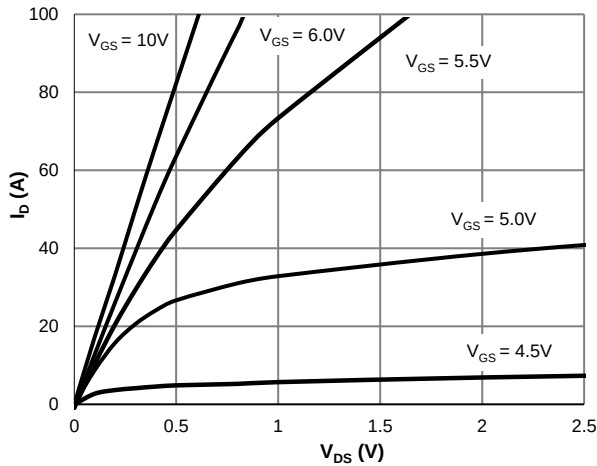


Figure 1: Saturation Characteristics

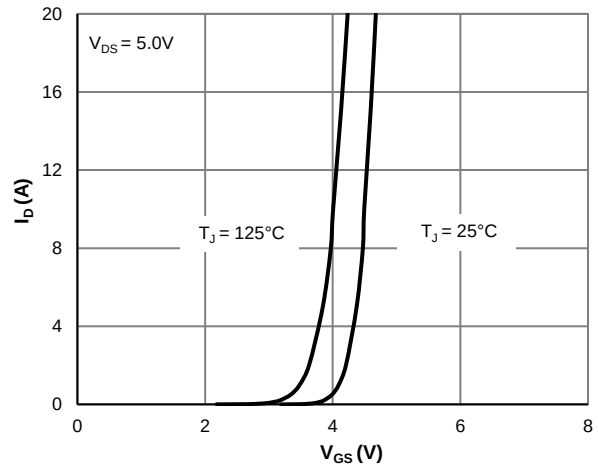


Figure 2: Transfer Characteristics

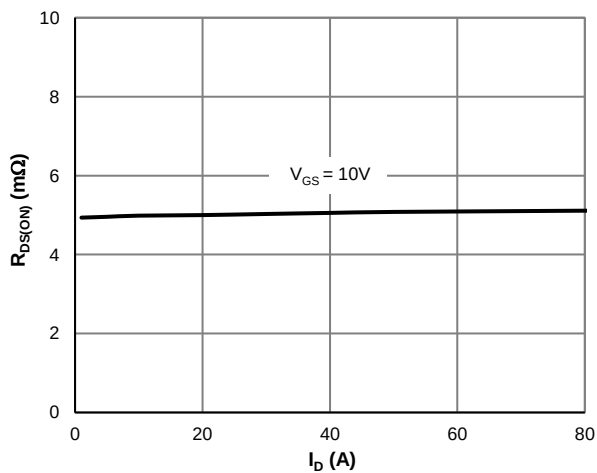


Figure 3: $R_{DS(ON)}$ vs. Drain Current

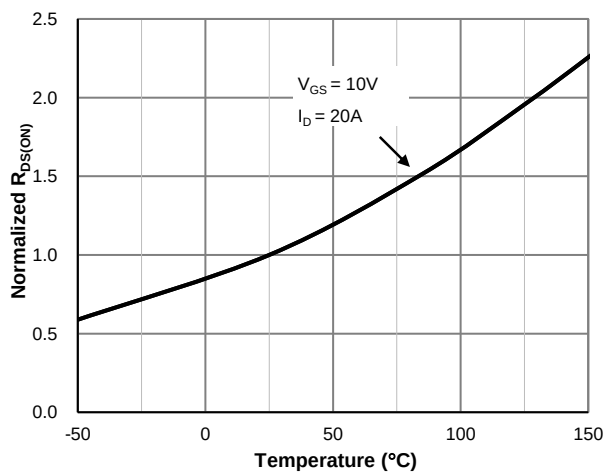


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

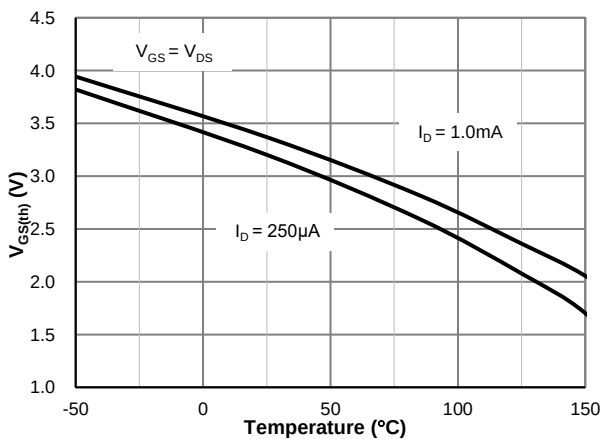


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

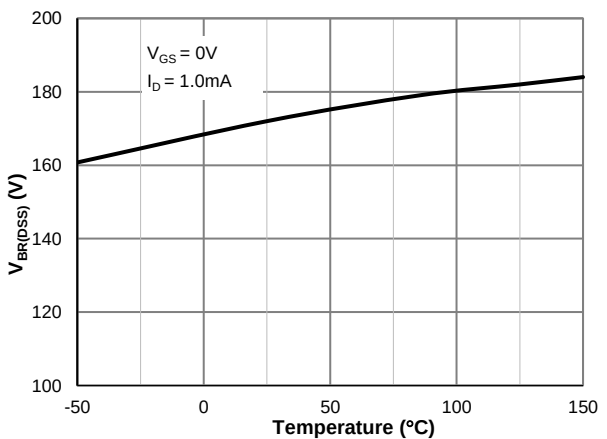


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

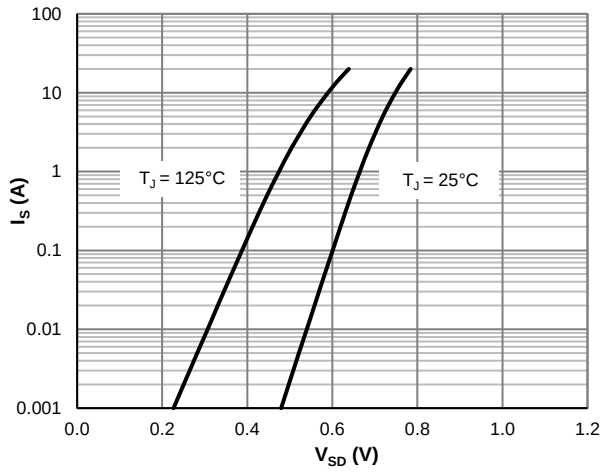


Figure 7: Body-Diode Characteristics

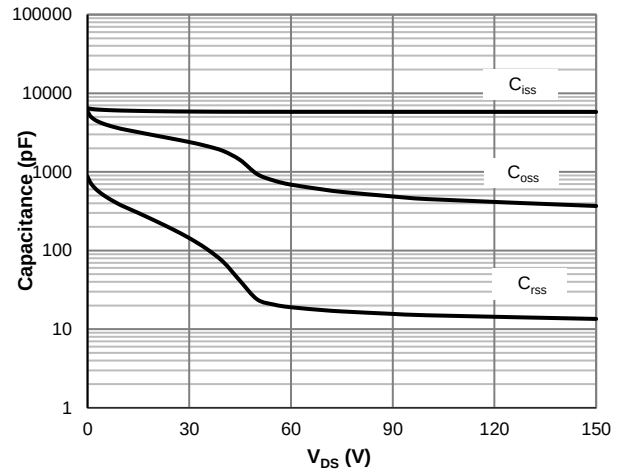


Figure 8: Capacitance Characteristics

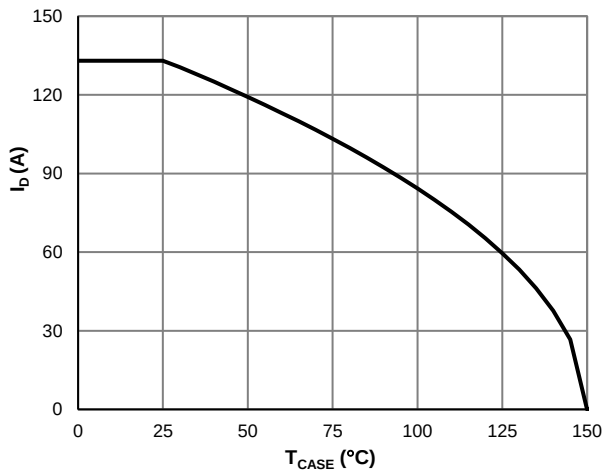


Figure 9: Current De-rating

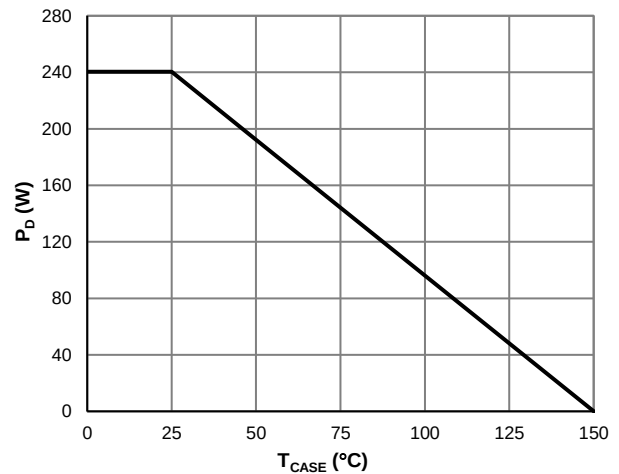


Figure 10: Power De-rating

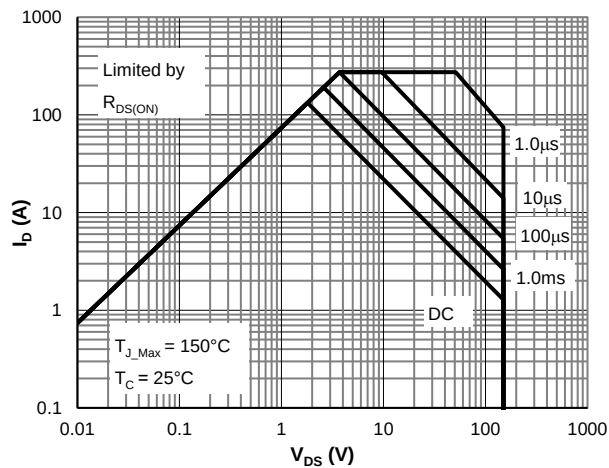


Figure 11: Maximum Safe Operating Area

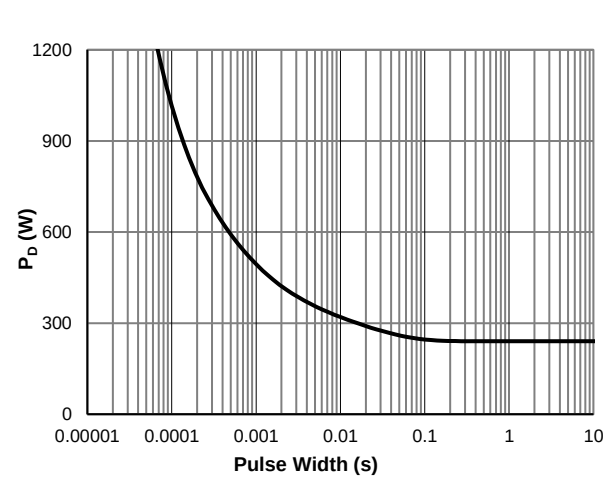


Figure 12: Single Pulse Power Rating, Junction-to-Case

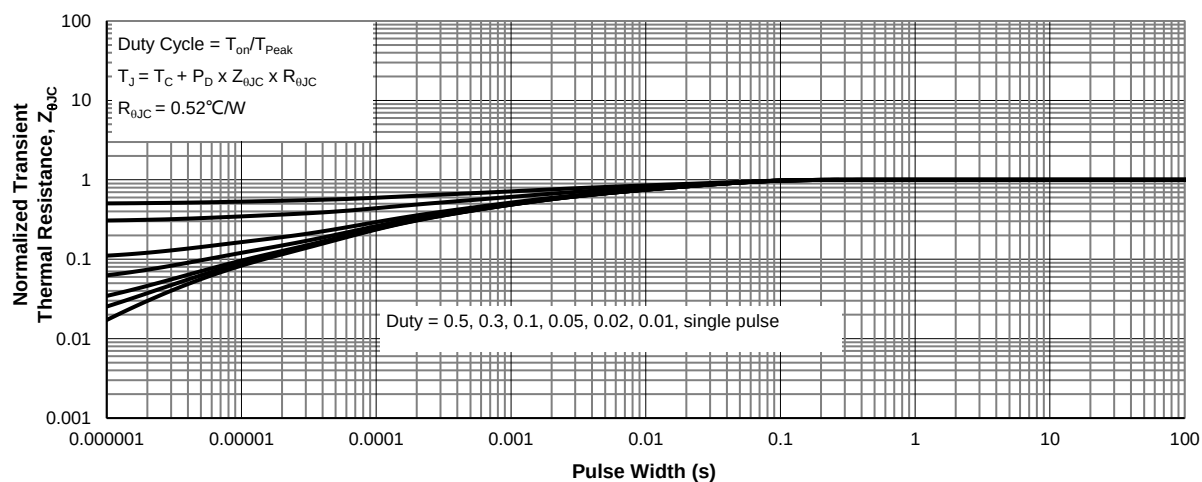
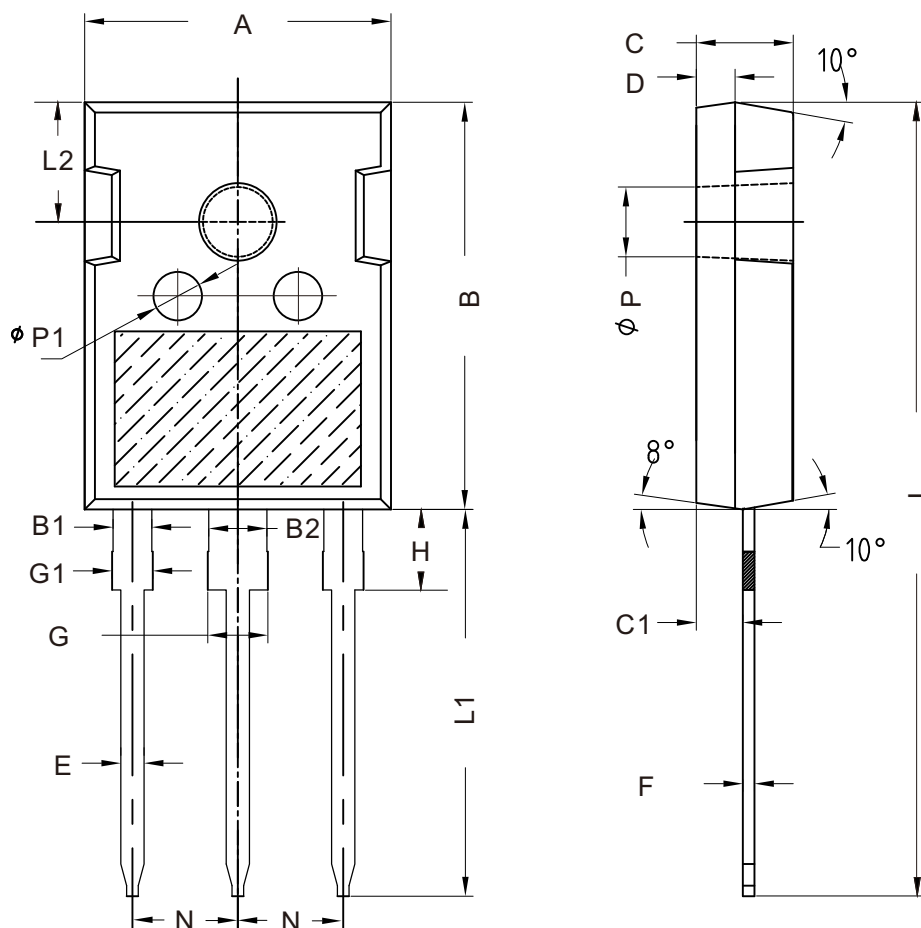


Figure 13: Normalized Maximum Transient Thermal Impedance

TO-247 Package Information:



Symbol	Millimeters		Symbol	Millimeters	
	Min.	Max.		Min.	Max.
A	15.6	16.0	G	2.90	3.30
B	19.9	21.2	G1	1.90	2.30
B1	1.80	2.20	H	3.90	4.30
B2	2.80	3.20	L	40.5	41.4
C	4.80	5.20	L1	19.7	20.2
C1	2.20	2.60	L2	6.04	6.30
D	1.90	2.10	N	5.30	5.68
E	1.00	1.40	ϕP	3.40	3.80
F	0.50	0.70	$\phi P1$	2.20	2.50

Marking Information:

①. Doingter LOGO

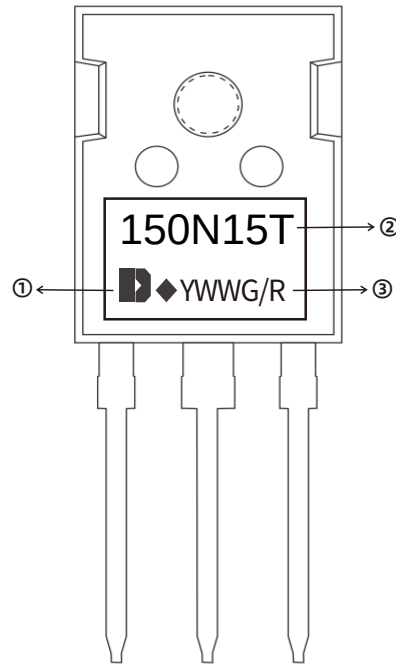
②. Part NO.

③. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2025-01-22	Release of final version

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