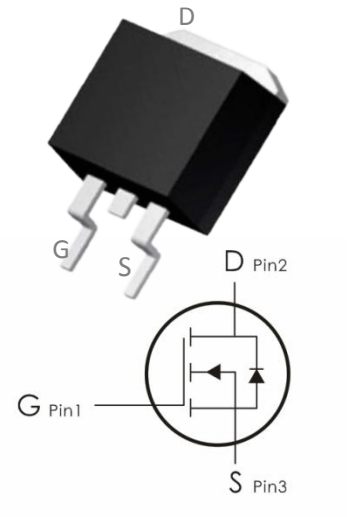
Description：

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}=100V,I_D=140A,$R_{DS(ON)}$<4 mΩ @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
DOB14N10	14N10	TO- 263	800 pcs/Reel

Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Curren[1]	140	A
	Continuous Drain Curren[1] T_C=100℃	100	
I_{DM}	Pulsed Drain Current[2]	689	
P_D	Power Dissipation[4]	312	W
E_{AS}	Single pulse avalanche energy[3]	726	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	0.6	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[4]	55	℃/W

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=100V	---	---	1	μA
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=250μA	2	3	4	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=20A	---	3	4	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V, f=1MHz	---	4700	---	pF
C_{oss}	Output Capacitance		---	860	--	
C_{rss}	Reverse Transfer Capacitance		---	18	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=50V R_{ENG}=3Ω,V_{GS}=10V	---	19	---	ns
t_r	Rise Time		---	34	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	48	---	ns
t_f	Fall Time		---	29	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=20A	---	80	---	nc
Q_{gs}	Gate-Source Charge		---	23	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	25	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, $I_{SD=}$1A	---	0.66	1	V
I_S	Continuous Drain Curren	VD=VG=0V	---	---	140	A
I_{SM}	Pulsed Drain Current		---	---	689	A
Trr	Reverse Recovery Time	I_F=20A,T_J=25℃ dI/dt=100A/us	---	71	---	ns
Qrr	Reverse Recovery Charge		---	127	---	nc

Notes:

1. Package limit
2. This single-pulse measurement was taken under T_{J_Max} = 150°C.
3. E_{AS} of 726 mJ is based on starting T_J = 25°C, L = 3mH, I_{AS} = 22A, V_{GS} = 10V, V_{DD} = 50V; 100% test at L = 0.3mH, I_{AS} = 45A. T_{J_Max} = 150°C.
4. The power dissipation P_D is based on T_{J_Max} = 150°C.
5. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics: (T_C=25℃ unless otherwise noted)

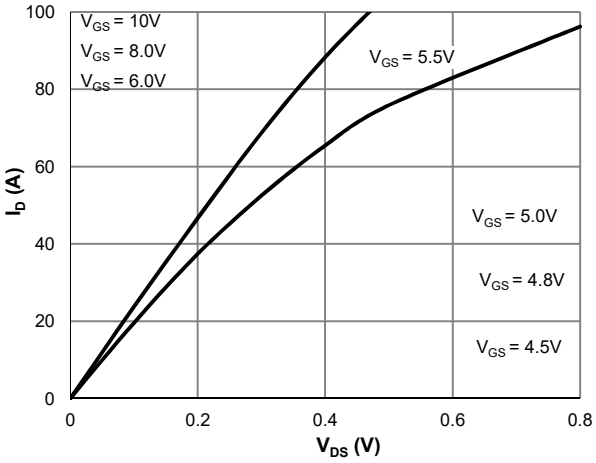


Figure 1: Saturation Characteristics

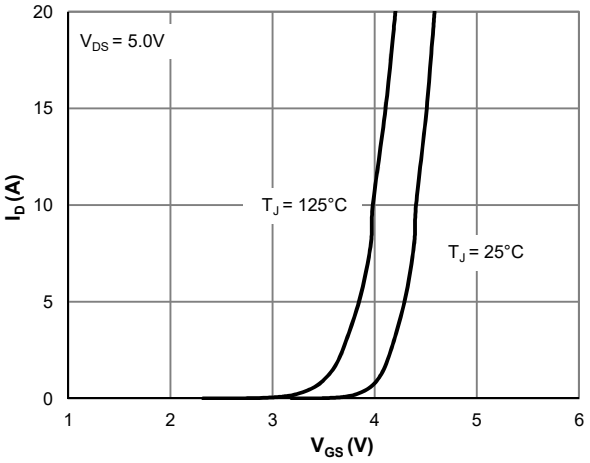


Figure 2: Transfer Characteristics

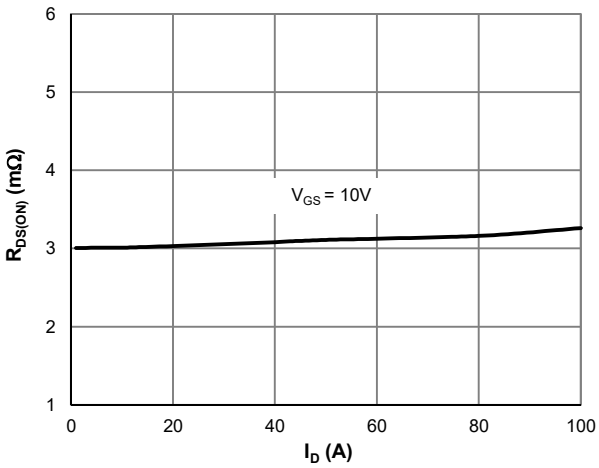


Figure 3: $R_{DS(ON)}$ vs. Drain Current

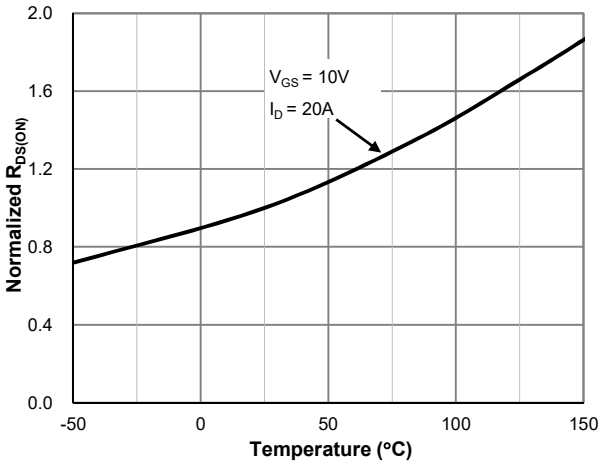


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

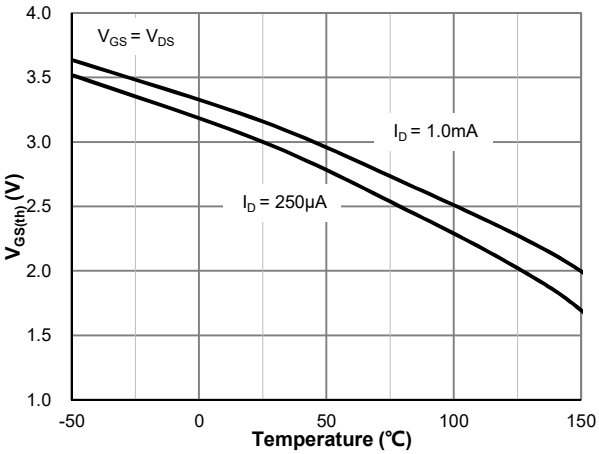


Figure 5: VGS(th) vs. Junction Temperature

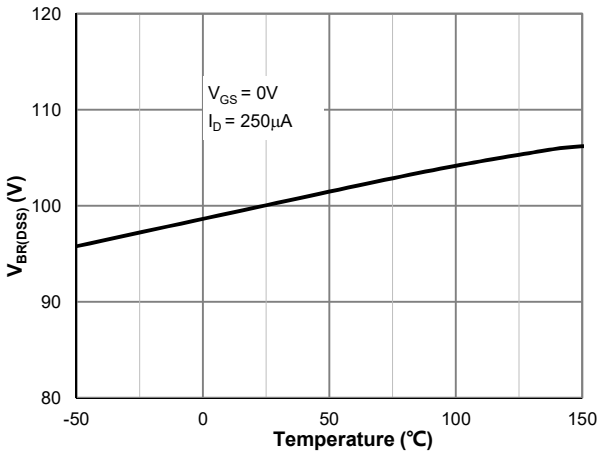


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

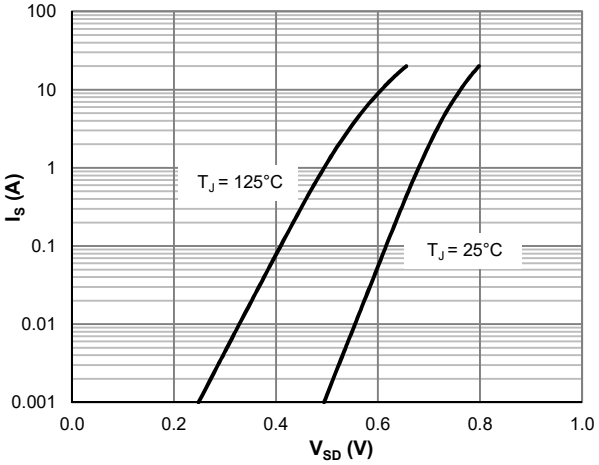


Figure 7: Body-Diode Characteristics

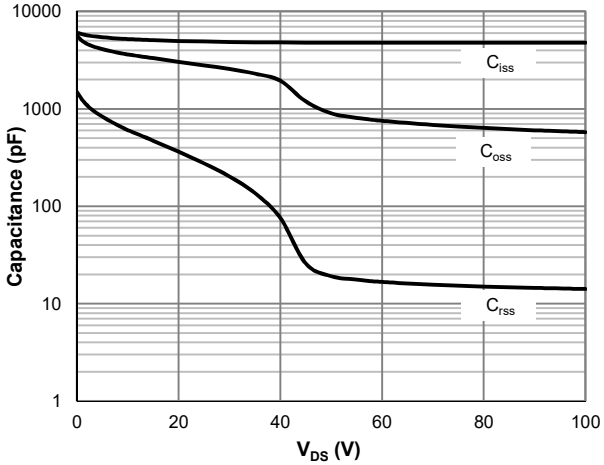


Figure 8: Capacitance Characteristics

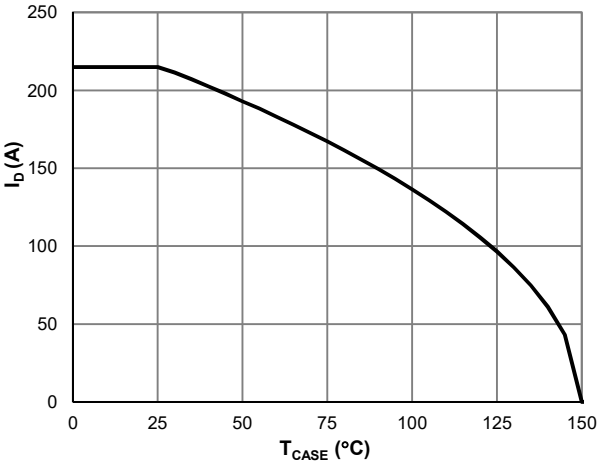


Figure 9: Current De-rating

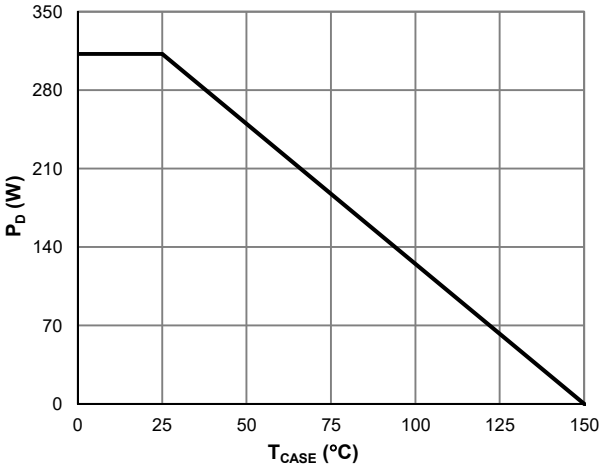


Figure 10: Power De-rating

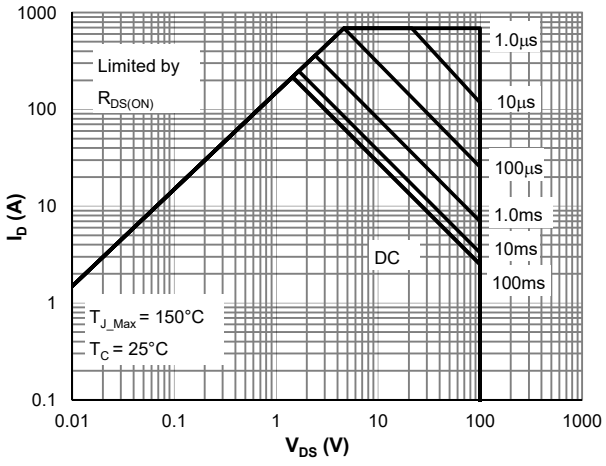


Figure 11: Maximum Safe Operating Area

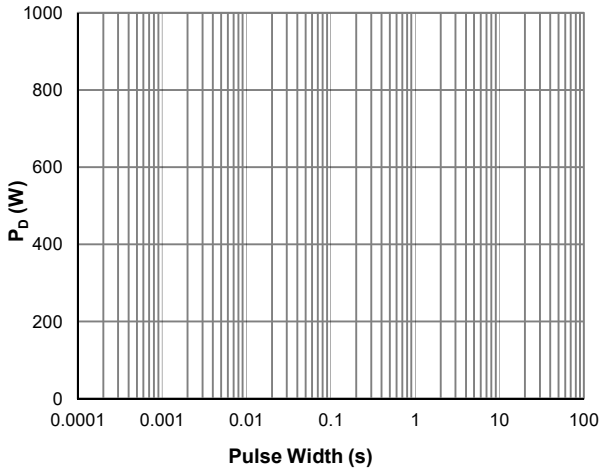


Figure 12: Single Pulse Power Rating, Junction-to-Case

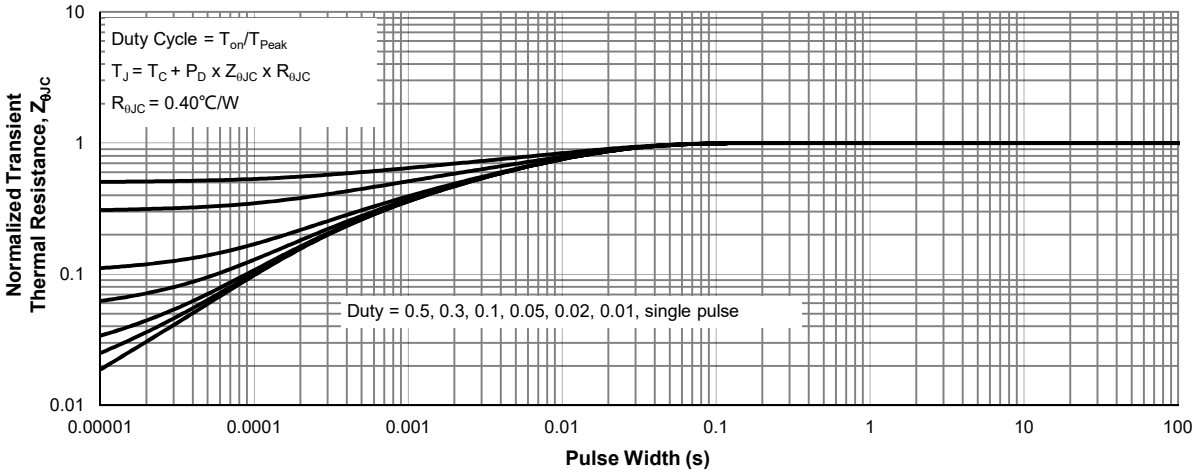
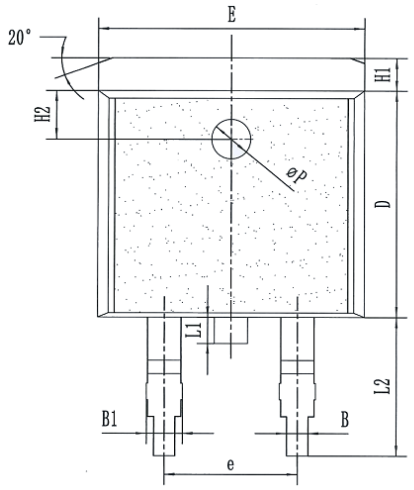
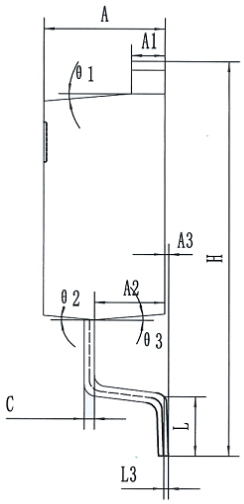


Figure 13: Normalized Maximum Transient Thermal Impedance

TO-263 Package Information： Unit:mm

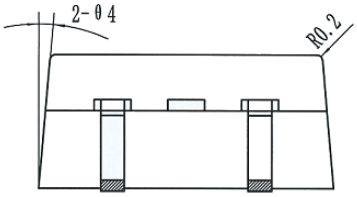
Package Outline Type-A



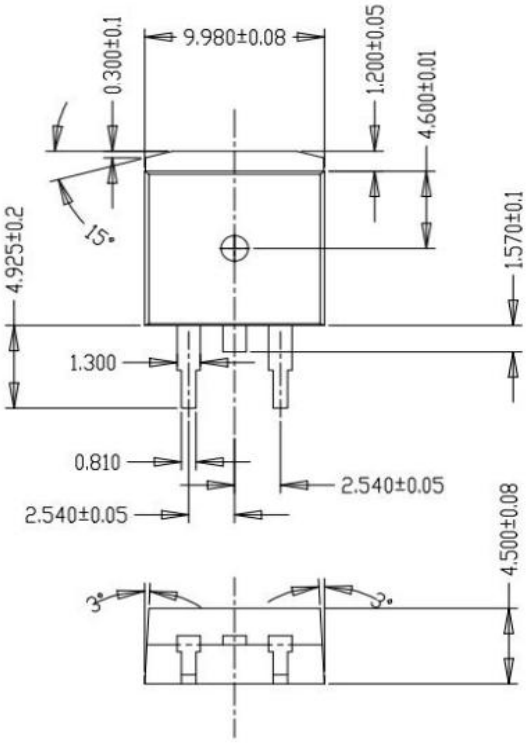


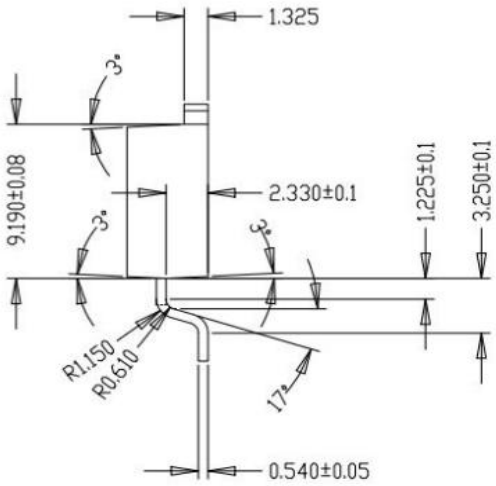
COMMON DIMENSIONS

SYMBOL	MM		
	MIN	NOM	MAX
A	4.50	4.60	4.70
A1	1.22	1.27	1.32
A2	2.57	2.67	2.77
A3	0.00		0.15
B	0.76	0.81	0.87
B1	1.32	1.37	1.42
C	0.33	0.38	0.43
D	8.55	8.65	8.75
e	5.08 BSC		
E	10.06	10.16	10.26
H	14.80	15.00	15.20
H1	1.17	1.27	1.37
H2	1.85 REF		
L	2.09	2.39	2.69
L1	0.80	1.00	1.20
L2	4.88	5.08	5.28
L3	0.25 REF		
ϕP	1.40	1.50	1.60
θ1	3°	5°	7°
θ2	3°	5°	7°
θ3	3°	5°	7°
θ4	3°	5°	7°



Package Outline Type-B





Marking Information：

①. Doingter LOGO

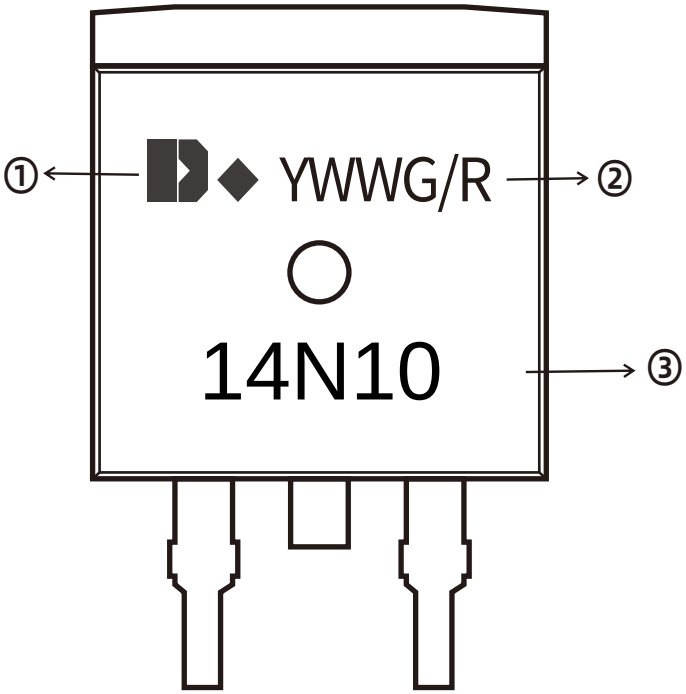
②. Date Code(YWWG / R)

Y：Year Code，last digit of the year

WW：Week Code(01-53)

G/R：G(Green) /R(Lead Free)

③. Part NO.



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