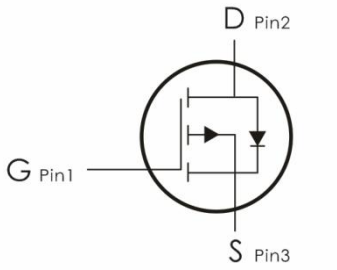
Description：

This P-Channel MOSFET uses advanced trench 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}=-40V,I_D=-45A,$R_{DS(ON)}$<12mΩ @V_{GS}=-10V（Type：10mΩ）
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
UD015PG-C	D015P-C	TO- 251	80 pcs/Tube

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	-45	A
	Continuous Drain Current-T_C=100℃	-31.5	
I_{DM}	Pulsed Drain Current [1]	-180	
P_D	Power Dissipation	40	W
E_{AS}	Single pulse avalanche energy [2]	100	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	3.1	℃/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	-40	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-40V	---	---	-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	-1.0	-1.5	-2.2	V
$R_{DS(ON)}$	Drain-Source On Resistance[3]	V_{GS}=-10V,I_D=-20A	---	10	12	mΩ
		V_{GS}=-4.5V,I_D=-10A	---	14	17	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-20V, V_{GS}=0V, f=1MHz	---	2100	---	pF
C_{oss}	Output Capacitance		---	270	--	
C_{rss}	Reverse Transfer Capacitance		---	215	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-20V, I_D=-11A, R_{ENG}=2.5Ω,V_{GS}=-10V	---	10	---	ns
t_r	Rise Time		---	21	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	53	---	ns
t_f	Fall Time		---	29	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-20V, I_D=-11A	---	35	---	nC
Q_{gs}	Gate-Source Charge		---	6.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	7.6	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=-11A	---	---	1.2	V
I_S	Continuous Drain Curren	V_D=V_G=0V	---	---	-45	A
I_{SM}	Pulsed Drain Current		---	---	-180	A
Trr	Reverse Recovery Time	I_F=-11A,T_J=25℃ dI/dt=100A/us	---	35	---	ns
Qrr	Reverse Recovery Charge		---	40	---	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 : TJ=25℃,VDD=-20V,V_G=-10V,L=0.5mH
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

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

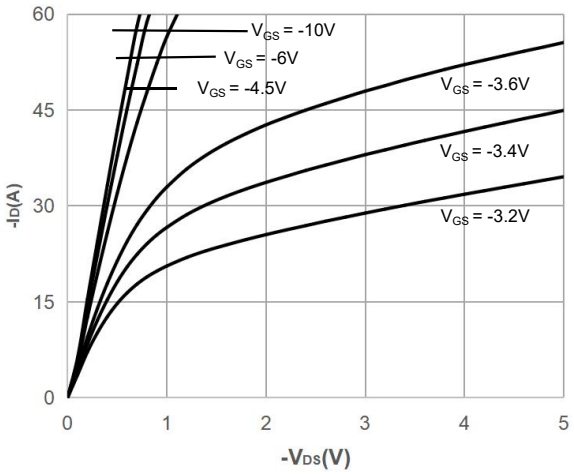


Figure 1: Output Characteristics

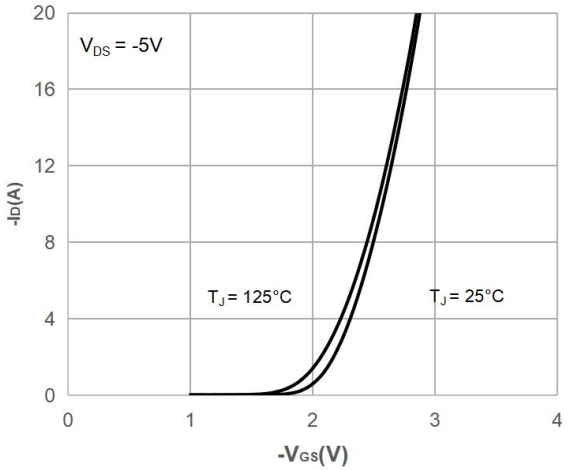


Figure 2: Typical Transfer Characteristics

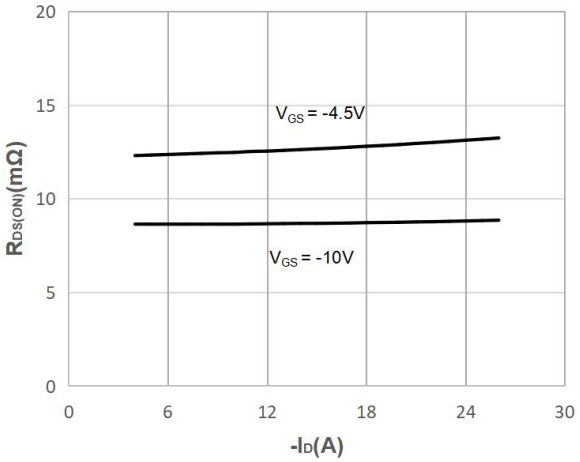


Figure 3: On-resistance vs. Drain Current

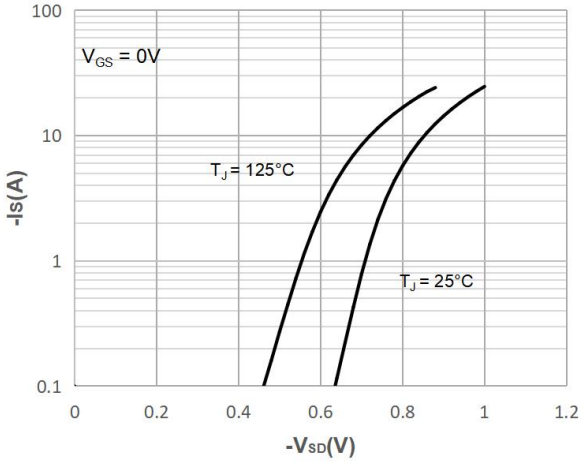


Figure 4: Body Diode Characteristics

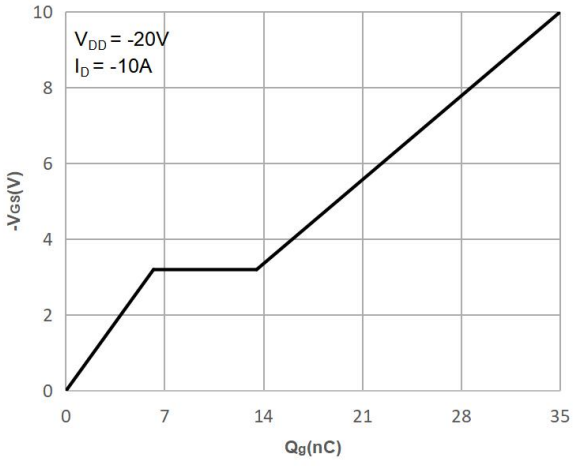


Figure 5: Gate Charge Characteristics

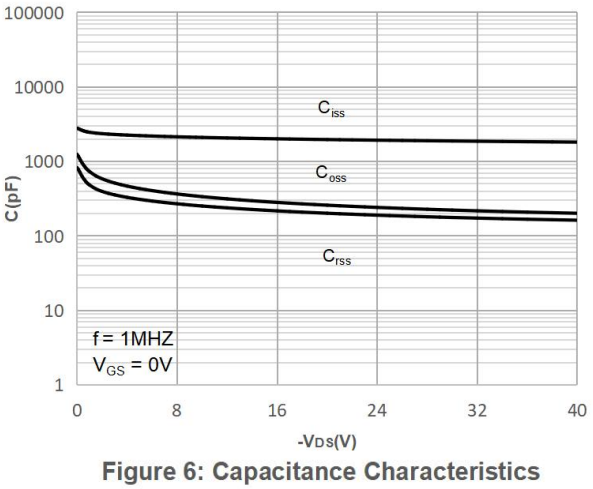


Figure 6: Capacitance Characteristics

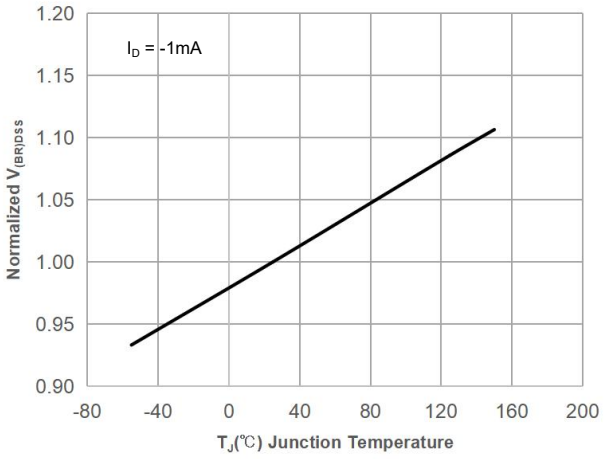


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

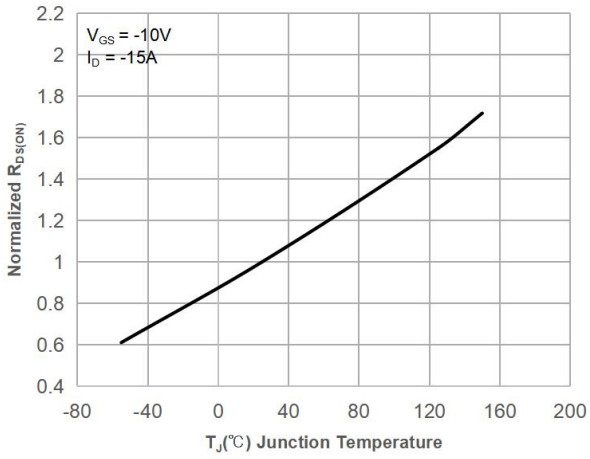


Figure 8: Normalized on Resistance vs. Junction Temperature

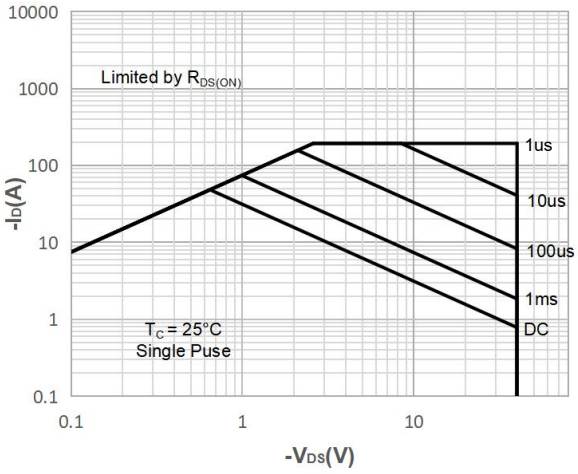


Figure 9: Maximum Safe Operating Area

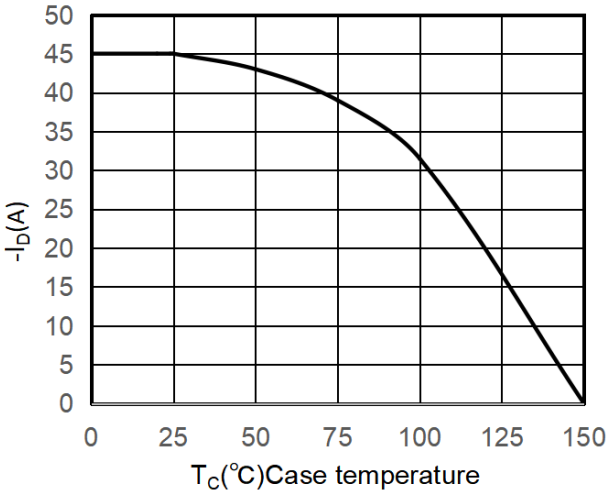


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

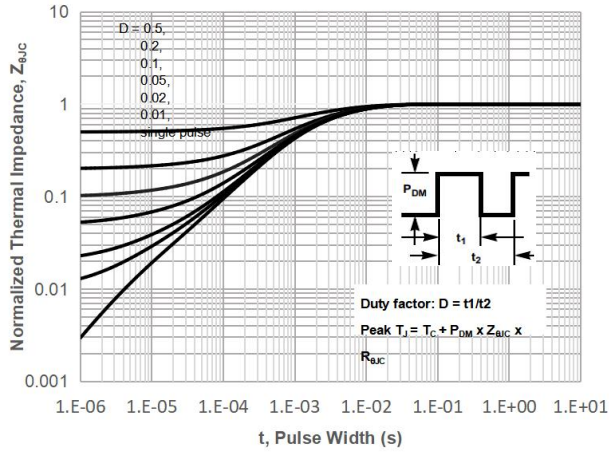


Figure 11: Normalized Maximum Transient Thermal Impedance

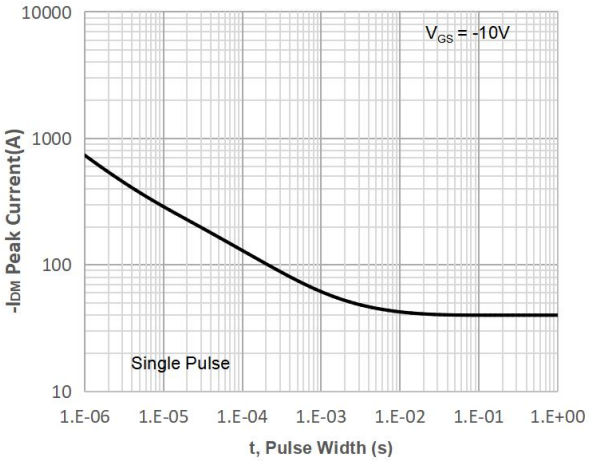
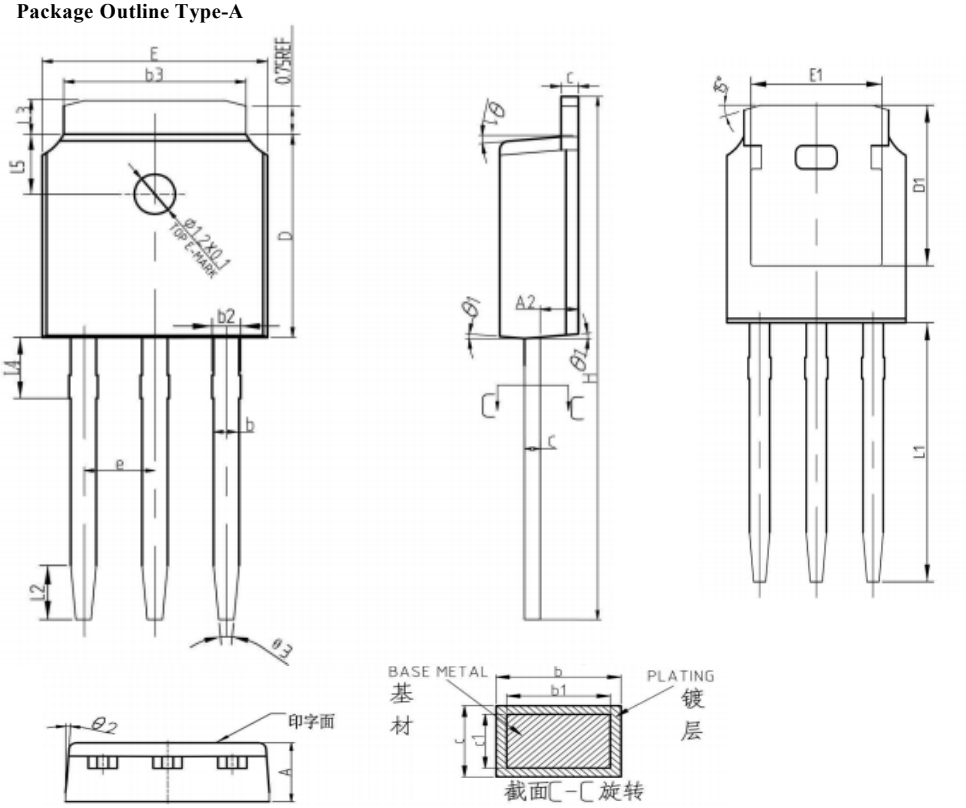


Figure 12: Peak Current Capacity

TO-251 Package Information

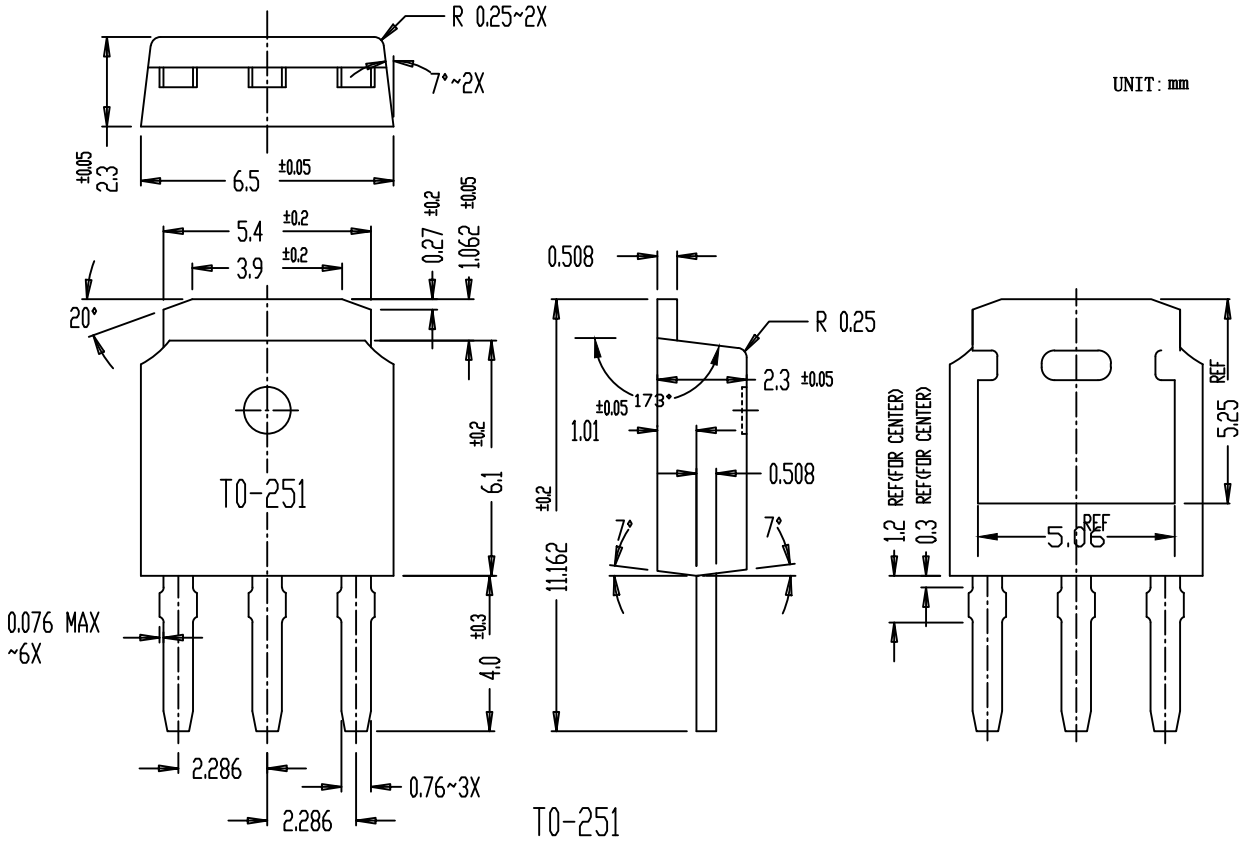
Package Outline Type-A



SYMBOL	mm		
	MIN	NOM	MAX
*A	2.20	2.30	2.38
*A2	0.97	1.07	1.17
*b	0.72	0.78	0.85
b1	0.71	0.76	0.81
*b2	0.72	0.88	0.95
*b3	5.23	5.33	5.46
*c	0.47	0.53	0.58
c1	0.46	0.51	0.56
*D	6.00	6.10	6.20
D1	5.30REF		
*E	6.50	6.60	6.70
E1	4.70	4.83	4.92
*e	2.286BSC		
*H	16.10	16.40	16.60
*L1	9.20	9.40	9.60
L2	1.25	1.35	1.45
*L3	0.90	1.02	1.22
L4	0.95	1.05	1.15
L5	1.70	1.80	1.90
θ1	5°	7°	9°
θ2	5°	7°	9°
θ3	11°	13°	15°
带*为检验尺寸			

Package Outline Type-B

UNIT: mm



Marking Information：

①. Doingter LOGO

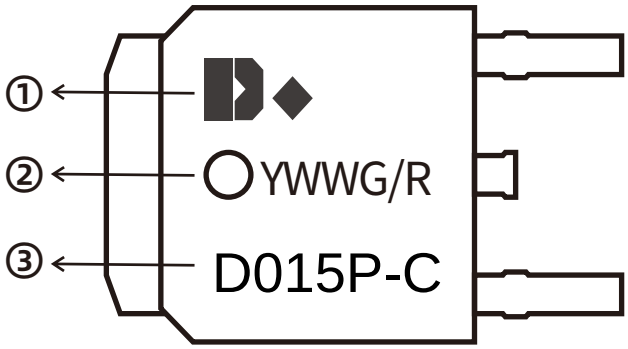
②. Date Code(YWWG / R)

Y：Year Code，last digit of the year

WW：Week Code(01-53)

G/R：G(Green) /R(Lead Free)

③. Part NO.



Previous Version

Version	Date	Subjects (major changes since last revision)
1.1	2025-07-02	Release of final version

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