

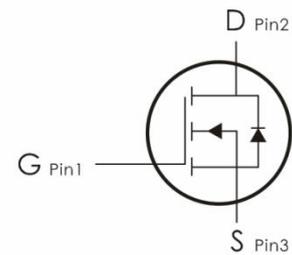
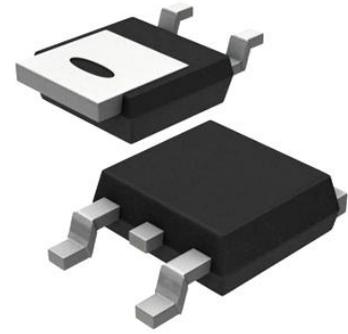
Description:

This N-Channel MOSFET uses advanced Planar 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) $V_{DS}=200V, I_D=5A, R_{DS(ON)} < 600m\Omega @ V_{GS}=10V$ (Typ: $470m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.
- 6) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DJ05NG-A	J05N-A	TO- 252	2500 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Continuous Drain Current	5	A
	Continuous Drain Current- $T_C=100^\circ C$	2.5	
I_{DM}	Pulsed Drain Current ¹	20	
P_D	Power Dissipation	33	W
E_{AS}	Single pulse avalanche energy ²	60	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	3.79	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	62.5	$^\circ C/W$

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	$V_{GS}=0V, I_D=250\ \mu\text{A}$	200	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=200V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	2.5	---	3.5	V
$R_{DS(on)}$	Drain-Source On Resistance ³	$V_{GS}=10V, I_D=2.5A$	---	470	600	$\text{m}\Omega$
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	289	---	pF
C_{oss}	Output Capacitance		---	68	--	
C_{rss}	Reverse Transfer Capacitance		---	23.1	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=100V, I_D=2.5A,$	---	13.1	---	ns
$t_{d(off)}$	Turn-Off Delay Time	$R_{ENG}=3.5\ \Omega, V_{GS}=10V$	---	16.8	---	ns
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=160V,$ $I_D=5A$	---	6.6	---	nC
Q_{gs}	Gate-Source Charge		---	1.6	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	2.31	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_{SD}=5A$	---	---	1.3	V
I_S	Continuous Drain Current	$V_D=V_G=0V$	---	---	5	A
I_{SM}	Pulsed Drain Current		---	---	20	A
T_{rr}	Reverse Recovery Time	$I_F=5A, T_J=25^{\circ}\text{C}$	---	93	---	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu\text{s}$	---	235	---	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : $T_J=25^{\circ}\text{C}, V_{DD}=100V, V_G=10V, L=0.5\text{mH}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

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

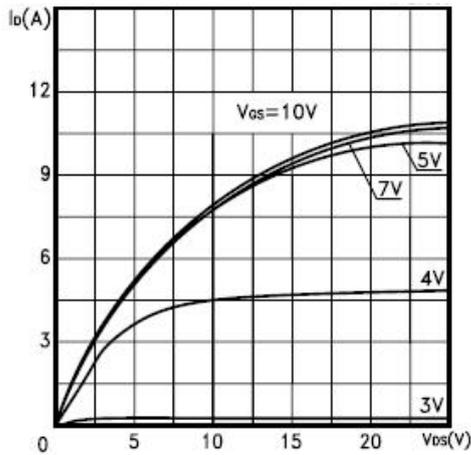


Fig1 Typical Output Characteristics, $T_c=25^\circ\text{C}$

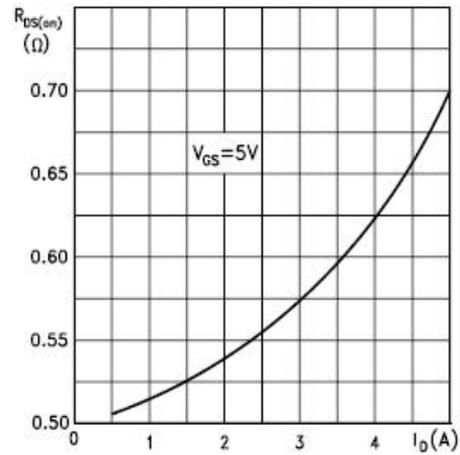


Fig2 On-Resistance Vs. Drain Current and Gate Voltage

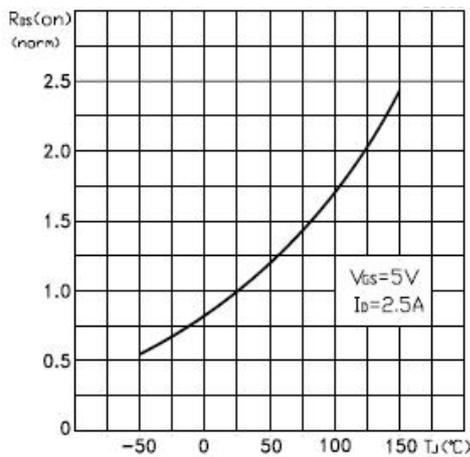


Fig3 Normalized On-Resistance Vs. Temperature

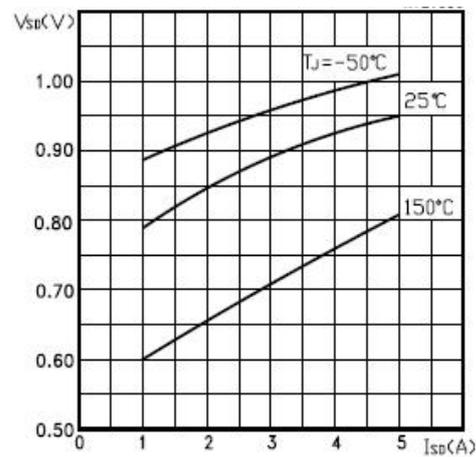


Fig4 Typical Source-Drain Diode Forward Voltage

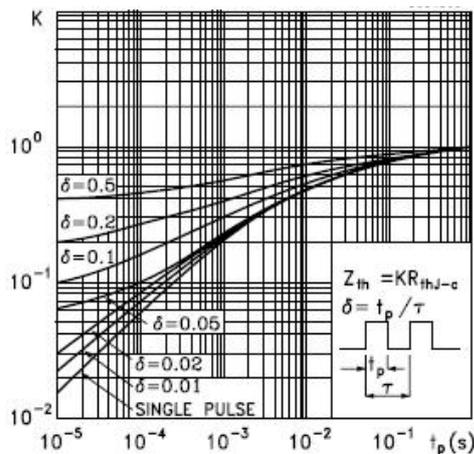


Fig5 Transfer Characteristics

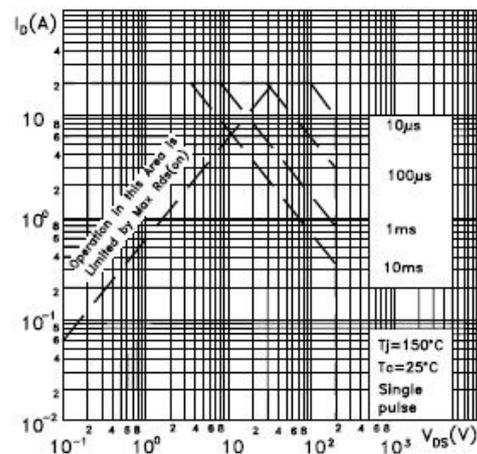
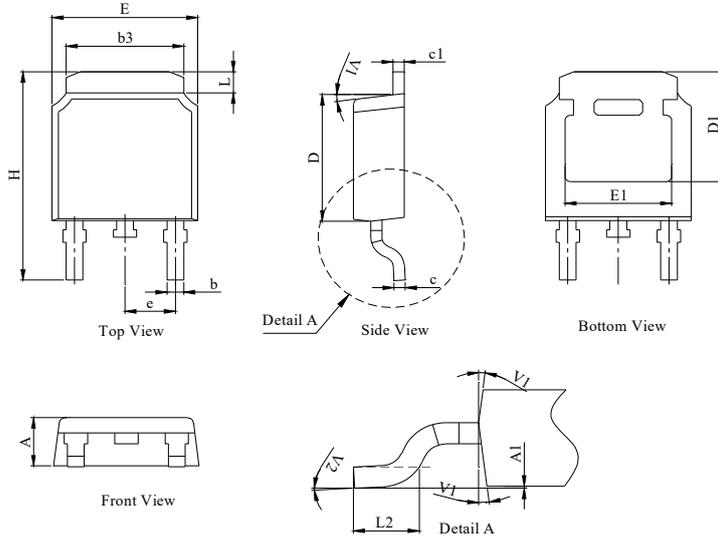


Fig6 Maximum Safe Operating Area

TO-252 Package Information

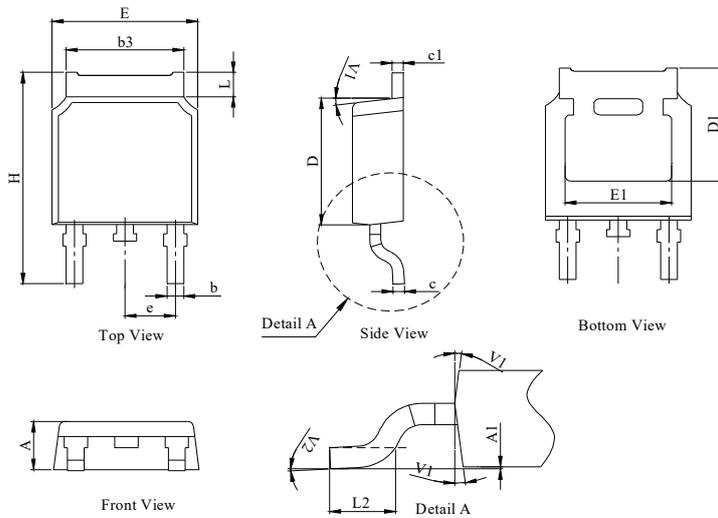
Package Outline Type-A

UNIT: mm



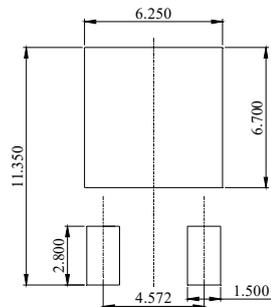
DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.18	2.30	2.39
A1	0	--	0.13
b	0.64	0.76	0.89
c	0.40	0.50	0.61
c1	0.46	0.50	0.58
D	5.97	6.10	6.23
D1	5.05	--	--
E	6.35	6.60	6.73
E1	4.32	--	--
b3	5.21	5.38	5.55
e	2.29 BSC		
H	9.40	10.00	10.40
L	0.89	--	1.27
L2	1.40	--	1.78
V1	7° REF		
V2	0°	--	6°

Package Outline Type-B



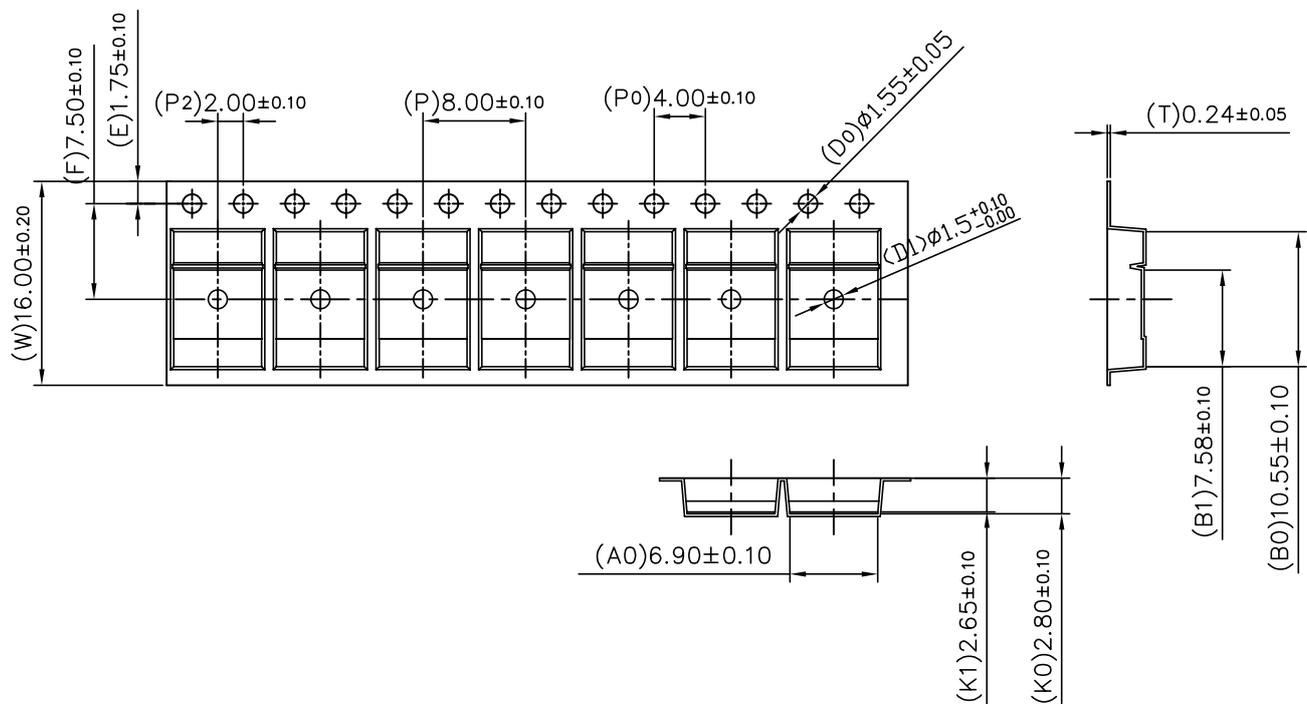
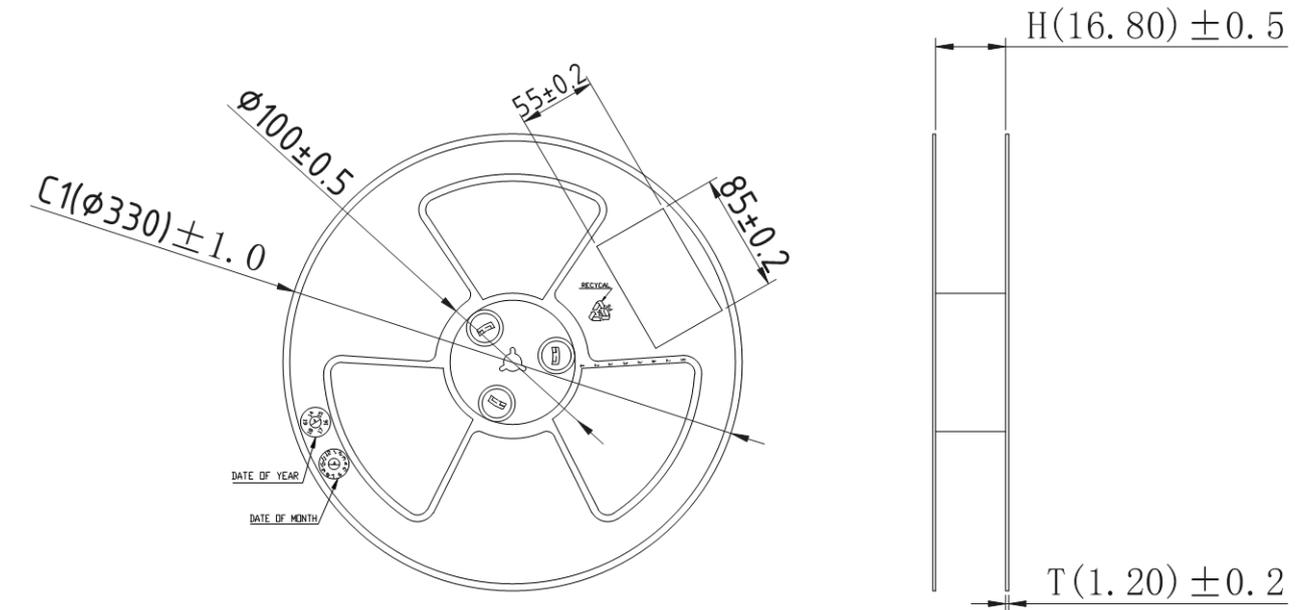
DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.10	2.30	2.40
A1	0	--	0.13
b	0.66	0.76	0.86
b3	5.21	5.38	5.55
c	0.40	0.50	0.60
c1	0.44	0.50	0.58
D	5.90	6.10	6.30
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.29 BSC		
H	9.50	10.00	10.70
L	1.09	--	1.21
L2	1.35	--	1.65
V1	7° REF		
V2	0°	--	6°

Recommended Soldering Footprint



Tape & Reel Information

Dimensions in mm



Pulling direction →

Marking Information:

①. Doingter LOGO

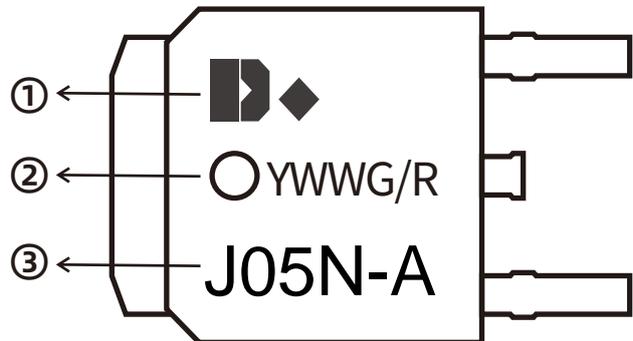
②. Date Code(YWWG / R)

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)
1.0	2024-09-29	Release of final version

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