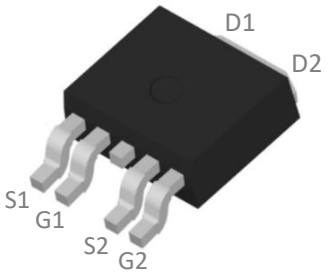
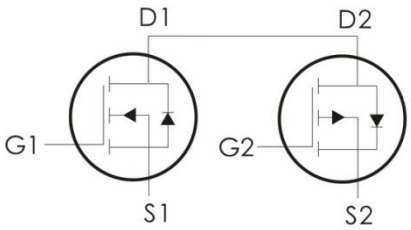
Description：

This N+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：

N-Channel:V_{DS}=30V,I_D=30A,$R_{DS(ON)}$<10mΩ @V_{GS}=10V

$R_{DS(ON)}$<17mΩ @V_{GS}=4.5V

P-Channel: V_{DS}=-30V,I_D=-22A,$R_{DS(ON)}$<25mΩ @V_{GS}=-10V

$R_{DS(ON)}$<40mΩ @V_{GS}=-4.5V

1) Low gate charge.
2) Green device available.
3) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
4) Excellent package for good heat dissipation.
5) MSL3

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
DOD617S	D617S	TO- 252-4	2500 pcs/Reel

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

Symbol	Parameter	N-Channel	P-Channel	Units
V_{DS}	Drain-Source Voltage	30	-30	V
V_{GS}	Gate-Source Voltage	±20	±20	V
I_D	Continuous Drain Current TC=25℃	30	-22	A
	Continuous Drain Current-TC=100℃	24	-18	
	Pulsed Drain Current	100	-75	
P_D	Operating and Storage Junction Temperature Range	22	23	W
T_J, T_{STG}		-55 to +150		℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	5.4	℃/W

N-CH 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	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-30V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics[3]						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.2	---	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=30A	---	7.5	10	mΩ
		V_{GS}=4.5V,I_D=15A	---	11	17	
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	890	---	pF
C_{oss}	Output Capacitance		---	119	---	
C_{rss}	Reverse Transfer Capacitance		---	95	---	
Switching Characteristics[4]						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V, I_D=15A, R_{GEN}=3.3Ω, V_{GS}=10V	---	4	---	ns
t_r	Rise Time		---	7	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	30	---	ns
t_f	Fall Time		---	3	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=15V, I_D=15A	---	9.5	---	nC
Q_{gs}	Gate-Source Charge		---	4.0	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	3.5	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Drain Diode Forward Voltage	V_{GS}=0V,I_S=1A	---	---	1.0	V
I_S	Continuous Source Current	V_D=V_G=0V	---	---	43	A

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

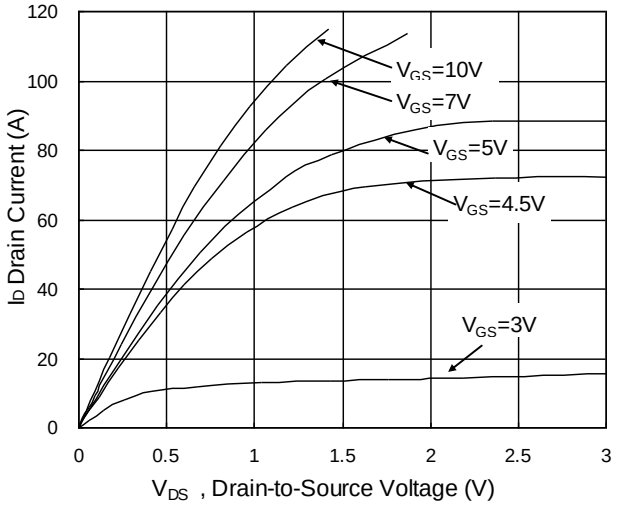


Fig.1 Typical Output Characteristics

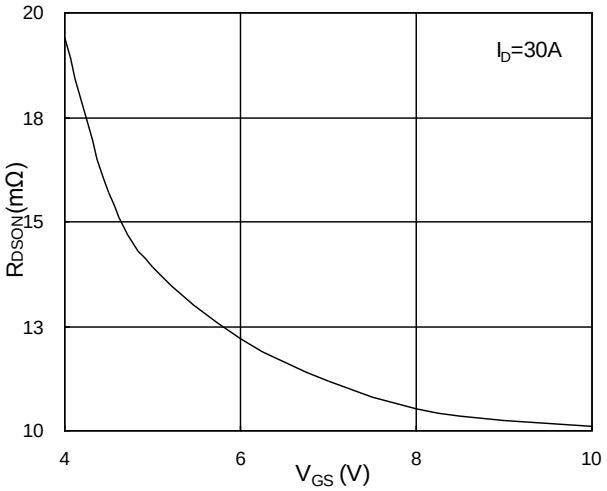


Fig.2 On-Resistance vs. G-S Voltage

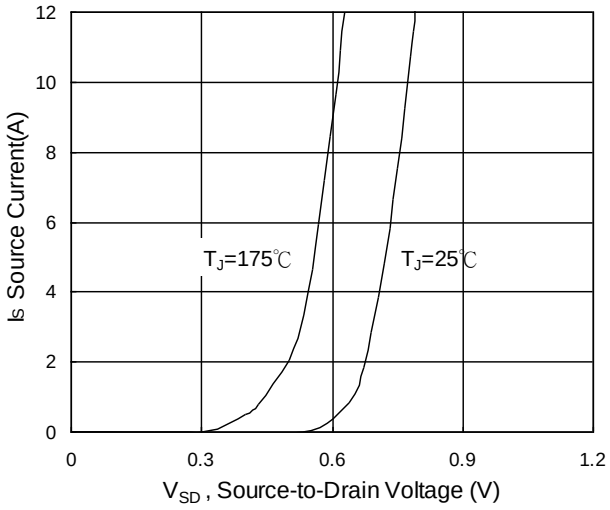


Fig.3 Forward Characteristics of Reverse

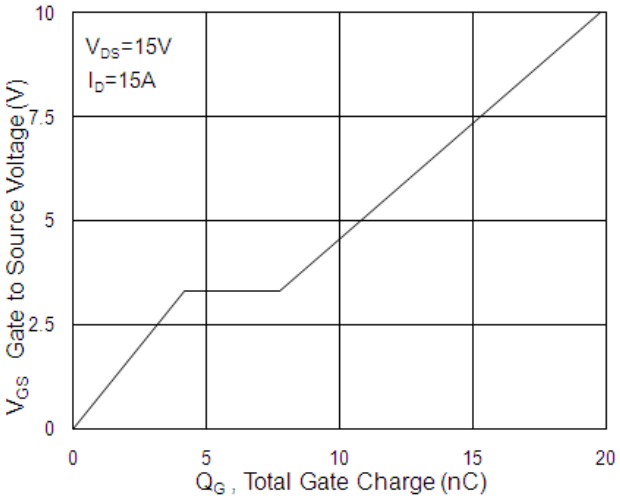


Fig.4 Gate-Charge Characteristics

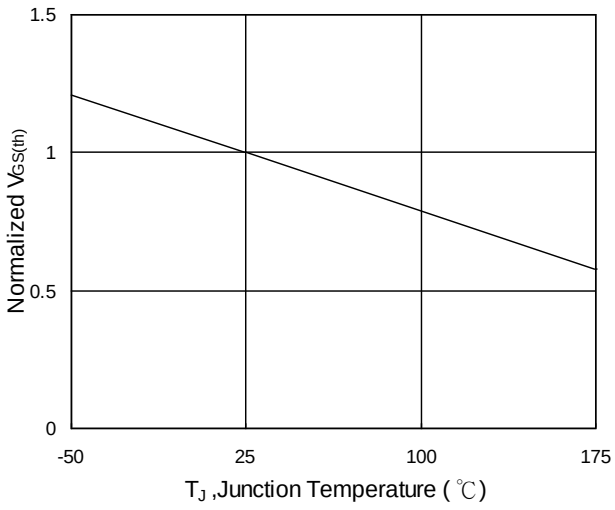


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

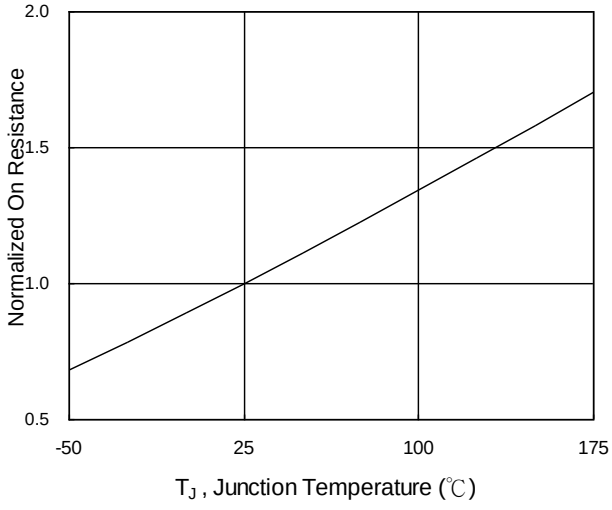


Fig.6 Normalized R_{DSON} vs. T_J

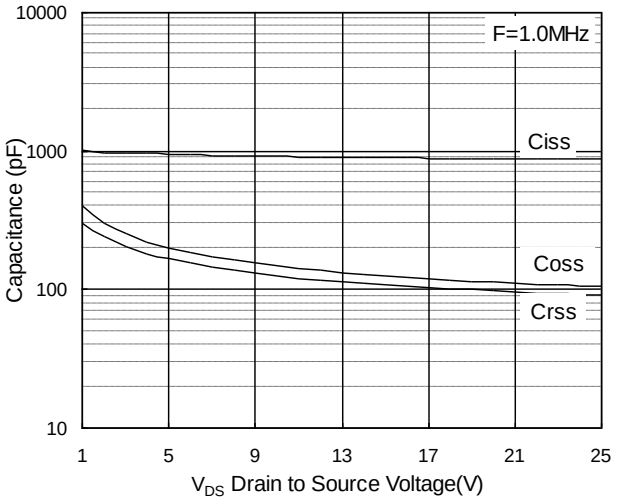


Fig.7 Capacitance

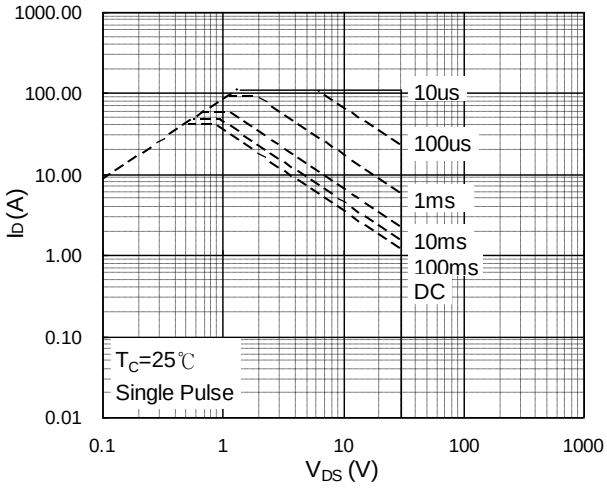


Fig.8 Safe Operating Area

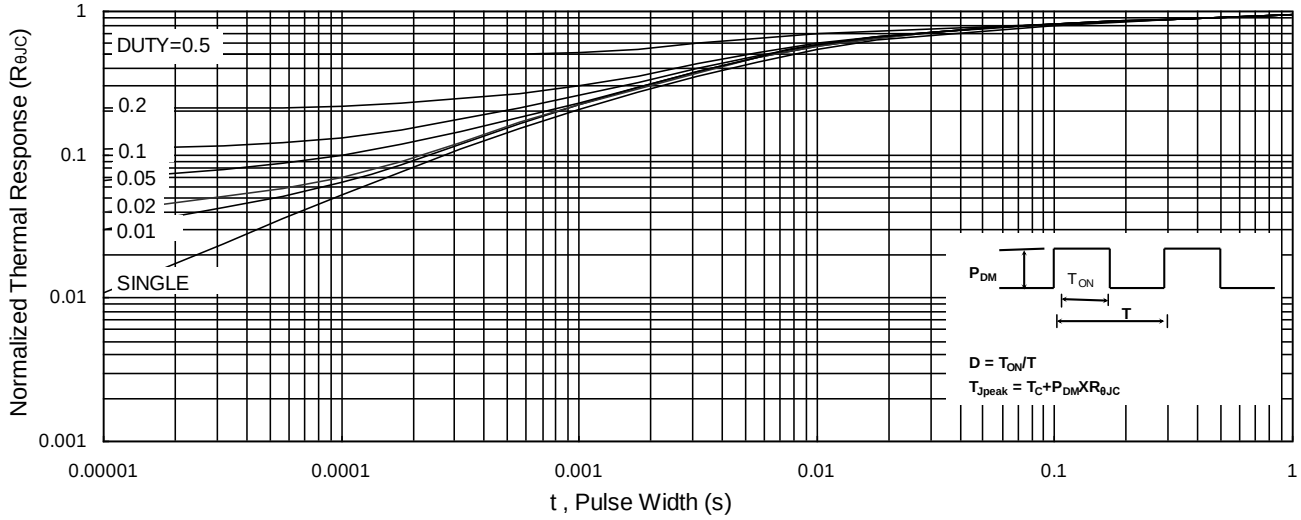


Fig.9 Normalized Maximum Transient Thermal Impedance

P-CH Electrical Characteristics: (T_A=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	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-30V	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics[3]						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	-1	-1.5	-2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[NOTE1]	V_{GS}=-10V,I_D=-10A	---	19	25	mΩ
		V_{GS}=4.5V,I_D=-5A	---	27	40	
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	---	1050	---	pF
C_{oss}	Output Capacitance		---	140	---	
C_{rss}	Reverse Transfer Capacitance		---	130	---	
Switching Characteristics[4]						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V, I_D=-1A, R_{GEN}=-6Ω , V_{GS}=-10V	---	12	---	ns
t_r	Rise Time		---	14	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	195	---	ns
t_f	Fall Time		---	95	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-15V, I_D=-8A	---	50	---	nC
Q_{gs}	Gate-Source Charge		---	9.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	8.1	---	nC
Drain-Source Diode Characteristics						
Is	Continuous Drain to Source Diode	V_D=V_G=0V	---	---	-1.1	A
I_{SM}	Pulsed Drain to Source Diode	V_D=V_G=0V	---	---	-45	A
V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V,I_S=-12A	---	---	-1.2	V
trr	Reverse Recovery Time	T_J=25℃, I_F=-2A,dI/dt=-100A/μs	---	23	---	nS
Qrr	Reverse Recovery Charge		---	14	---	nC

Typical Characteristics-P: (T_A=25℃ unless otherwise noted)

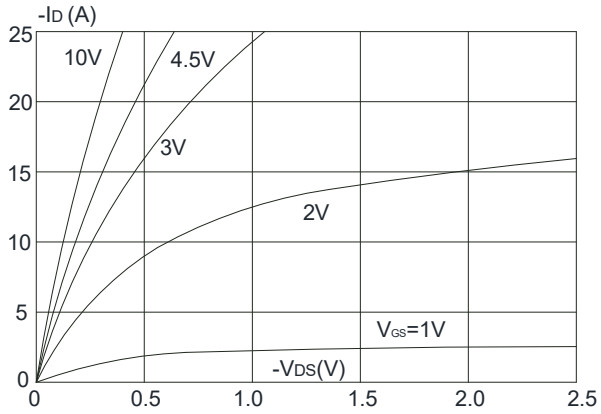


Figure1: Out ut Characteristics

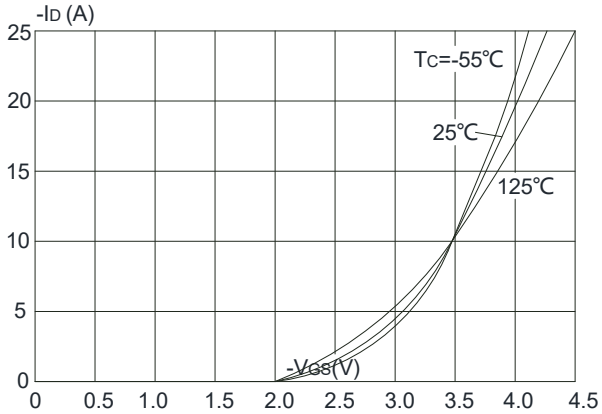


Figure 2: T ical Transfer Characteristics

I (A)

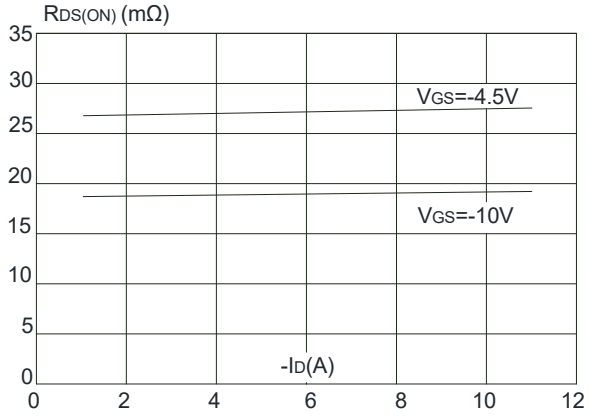


Figure 3: On-resistance vs. Drain Current

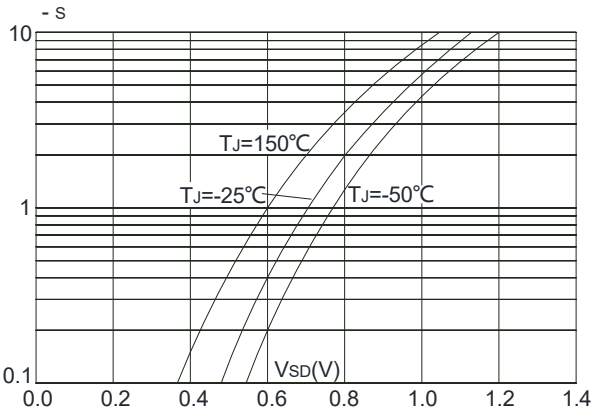


Figure 4: Body Diode Characteristics

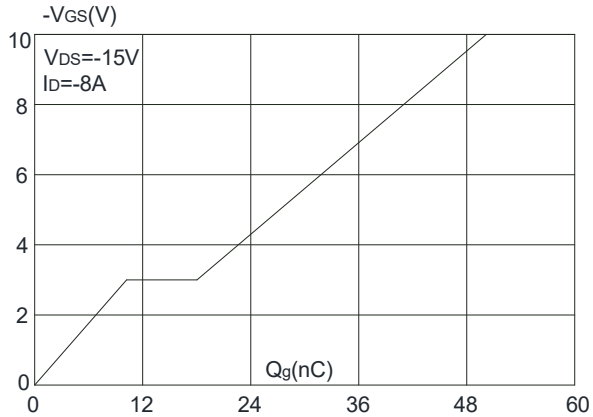


Figure 5: Gate Charge Characteristics

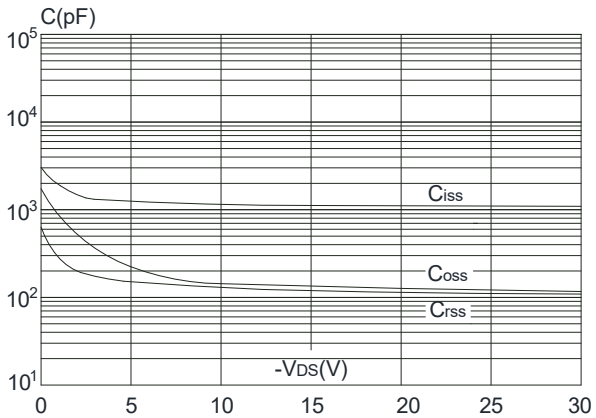


Figure 6: Capacitance Characteristics

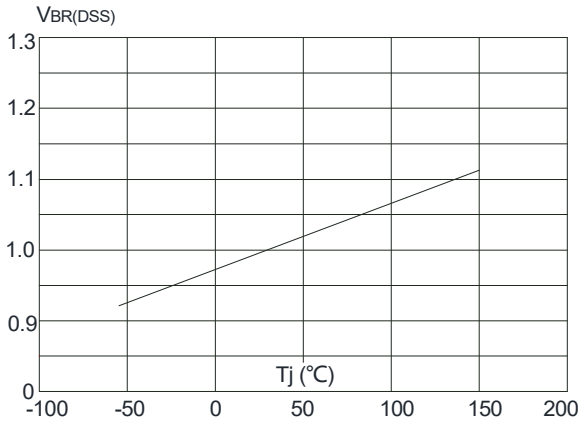


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

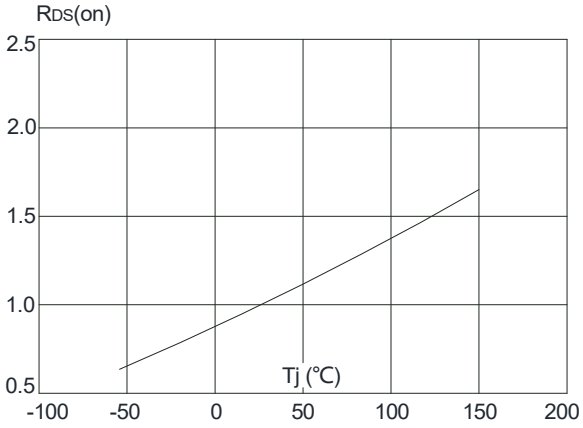


Figure 8: Normalized on Resistance vs. Junction Temperature

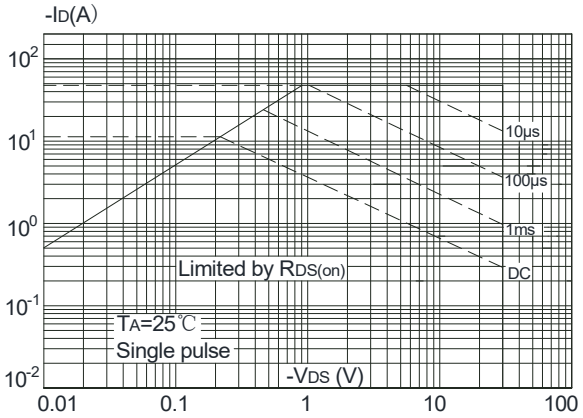


Figure 9: Maximum Safe Operating Area

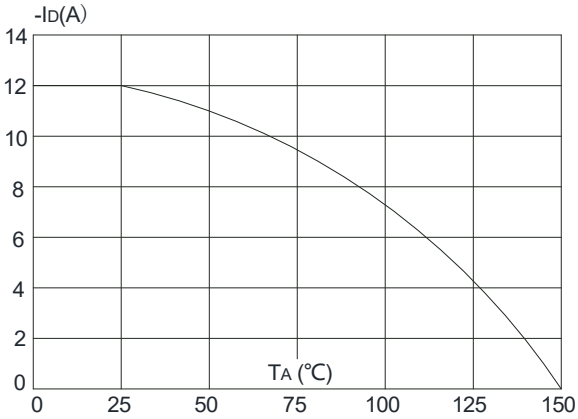


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

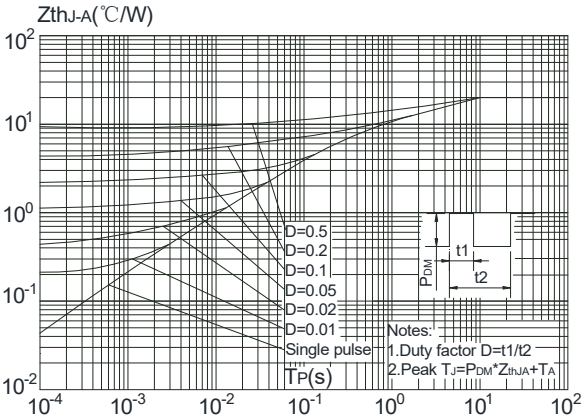
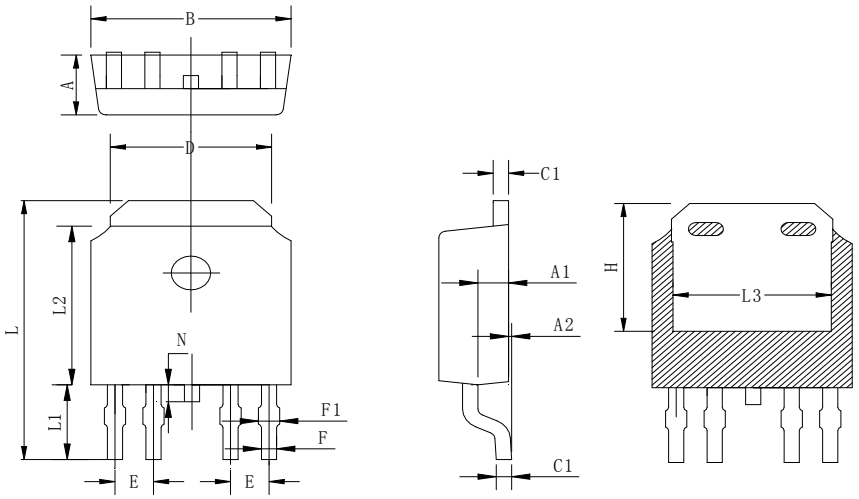


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

TO-252-4 Package Information：

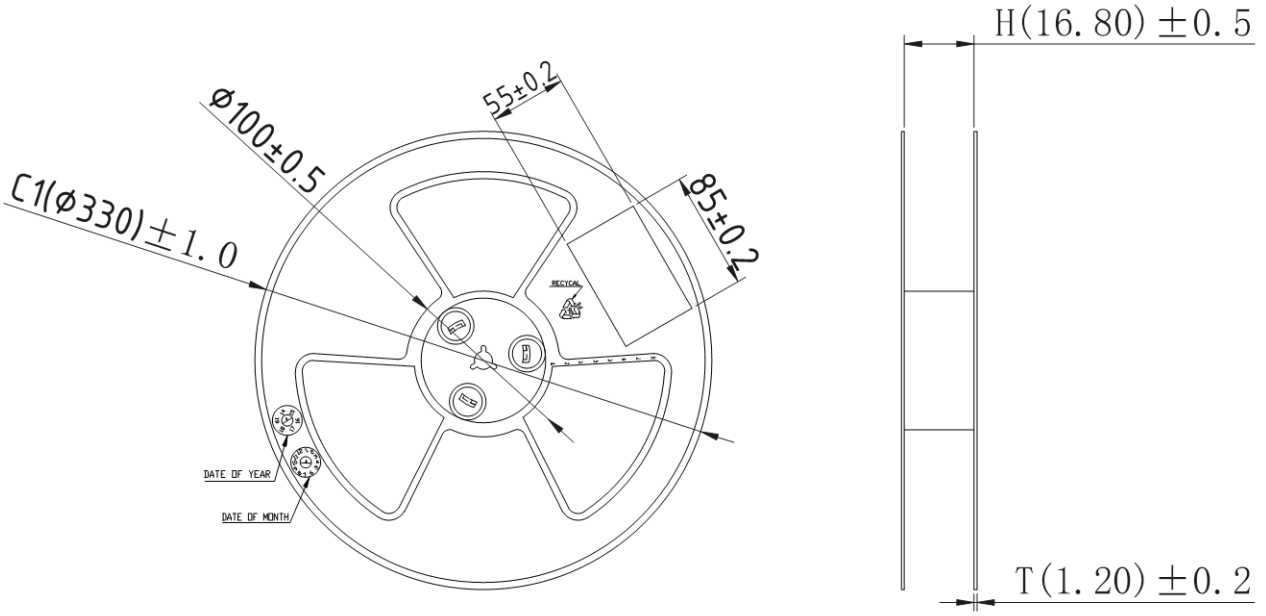
UNIT: mm

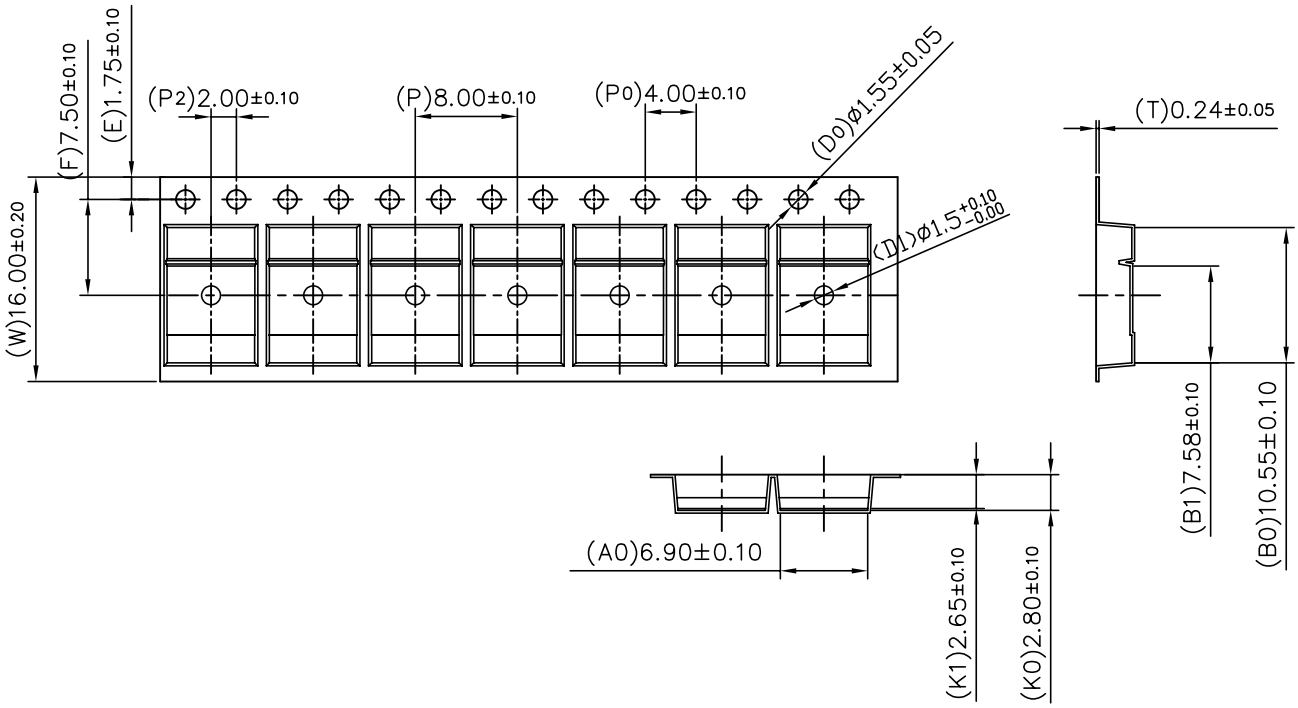


Symbol	Min	Typ	Max
A	2.20	2.30	2.40
A1	0.91	1.01	1.11
A2	0.05	0.15	0.25
B	6.45	6.60	6.75
C	0.45	0.50	0.58
C1	0.45	0.50	0.58
D	5.12	5.32	5.52
E		1.27 TYP	
F1	0.45	0.60	0.75
F	0.40	0.50	0.60
H	4.70	4.90	5.10
L	9.70	10.00	10.20
L1	2.6	2.8	3.0
L2	5.95	6.10	6.25
L3	5.00	5.20	5.40`
N	0.45	0.65	0.85

Tape & Reel Information

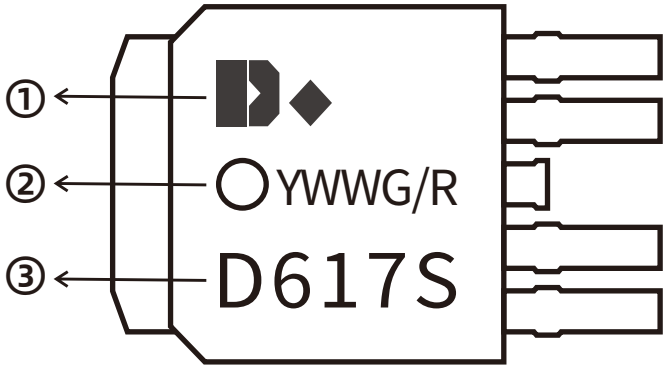
Dimensions in mm





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)
1.0	2023-09-09	Release of final version

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