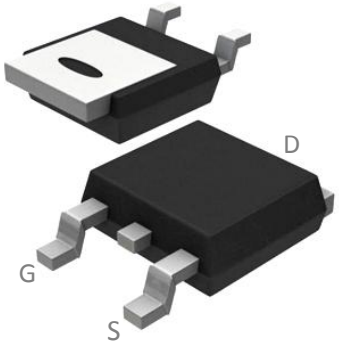
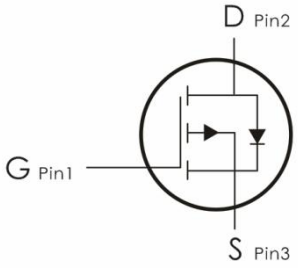
Description：

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}=-30V,I_D=-30A,$R_{DS(ON)}$<25mΩ @V_{GS}=-10V（Typ：19mΩ）
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.
6) MSL3

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
DC025PG-B	C025P-B	TO- 252	2500 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-T_C=25℃ [1]	-30	A
	Continuous Drain Current-T_C=100℃ [1]	-21	A
I_{DM}	Pulsed Drain Current [2]	-120	A
P_D	Total Power Dissipation	31.3	W
E_{AS}	Single Pulsed Avalanche Energy[3]	45	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction-Amblent	62	℃/W
$R_{\theta JC}$	Thermal Resistance,Junction to Case	4	℃/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	-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						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=-250μA	-1.0	-1.5	-2.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[4]	V_{GS}=-10V,I_D=-10A	---	19	25	mΩ
		V_{GS}=-4.5V,I_D=-5A	---	27	40	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	---	1200	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	135	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=-15V, I_D=-1A, V_{GS}=-10V, R_{GEN}=6Ω,R_D=15Ω	---	13	---	ns
t_r	Rise Time		---	15	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	198	---	ns
t_f	Fall Time		---	98	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-15V, I_D=-8A	---	50	---	nC
Q_{gs}	Gate-Source Charge		---	9.8	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	8.3	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Drain Diode Forward Voltage	V_{GS}=0V,I_S=-12A	---	---	-1.2	V
I_S	Continuous Source Current	V_G=V_D=0V	---	---	-30	A
I_{SM}	Pulsed Source Current		---	---	-120	A
Trr	Reverse Recovery Time	T_J=25℃, I_F=-2A,dI/dt=-100A/μs	---	37	---	ns
Qrr	Reverse Recovery Charge		---	36	---	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=-15 V,V_G=-10V,L=0.5mH
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

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

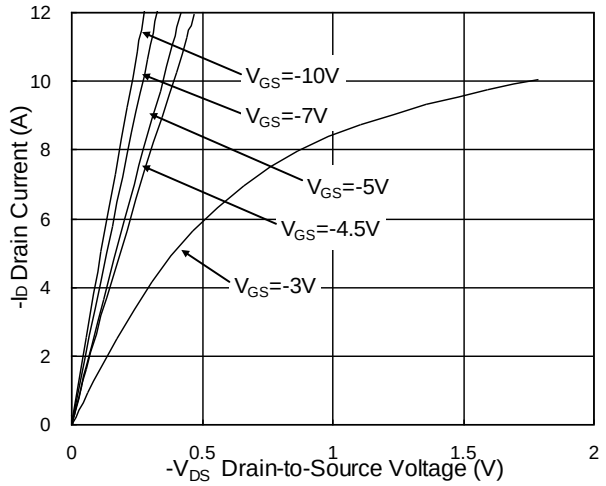


Fig.1 Typical Output Characteristics

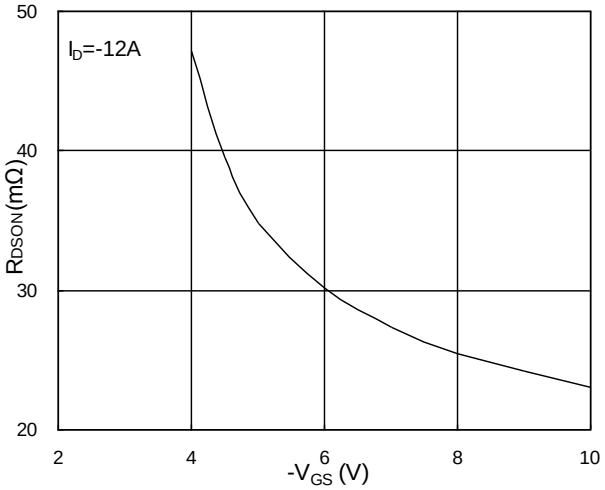


Fig.2 On-Resistance v.s Gate-Source

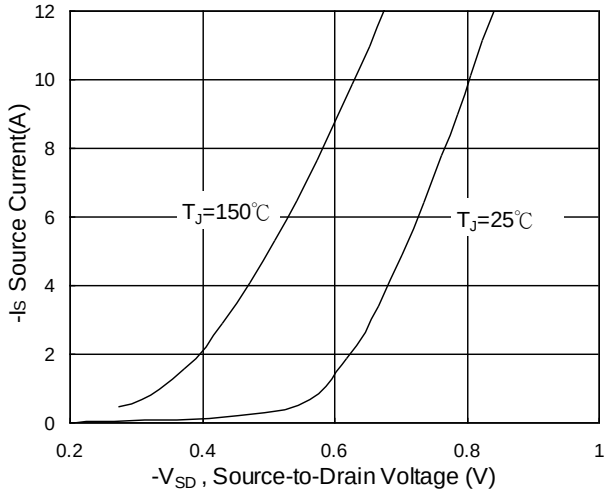


Fig.3 Forward Characteristics of Reverse

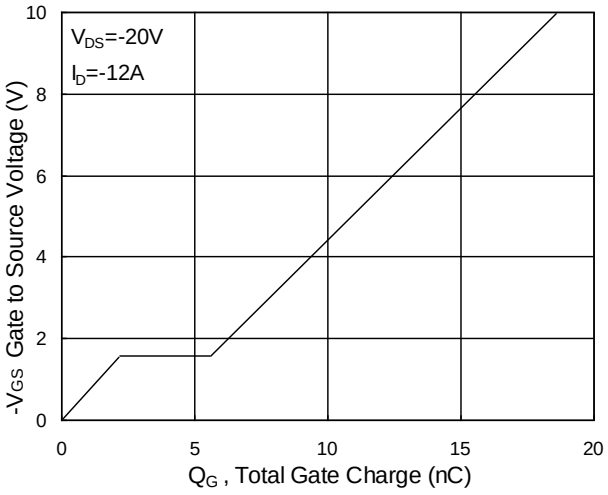


Fig.4 Gate-Charge Characteristics

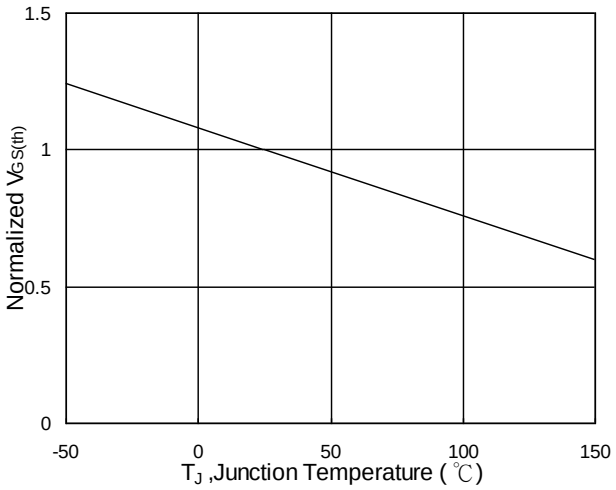


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

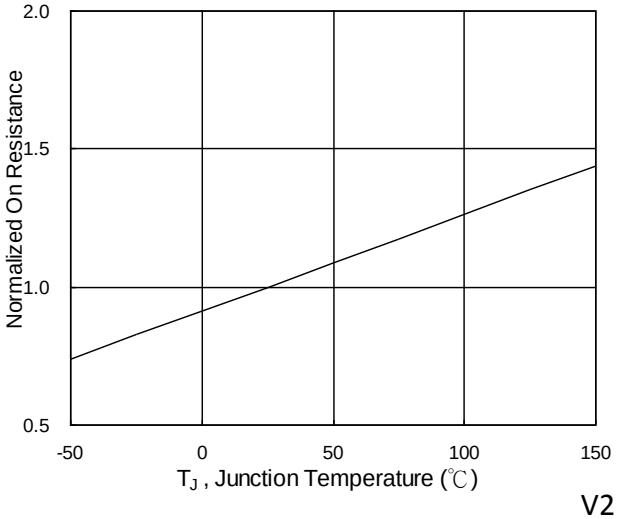


Fig.6 Normalized R_{DSON} v.s T_J

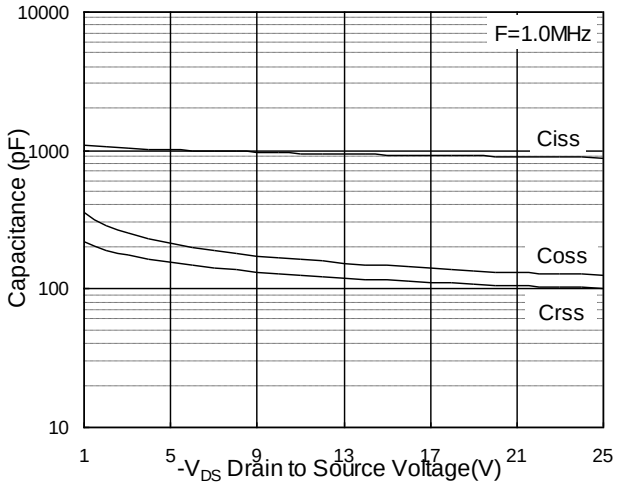


Fig.7 Capacitance

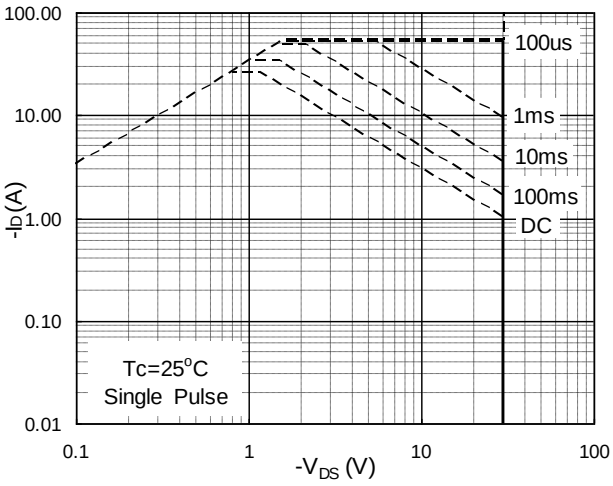


Fig.8 Safe Operating Area

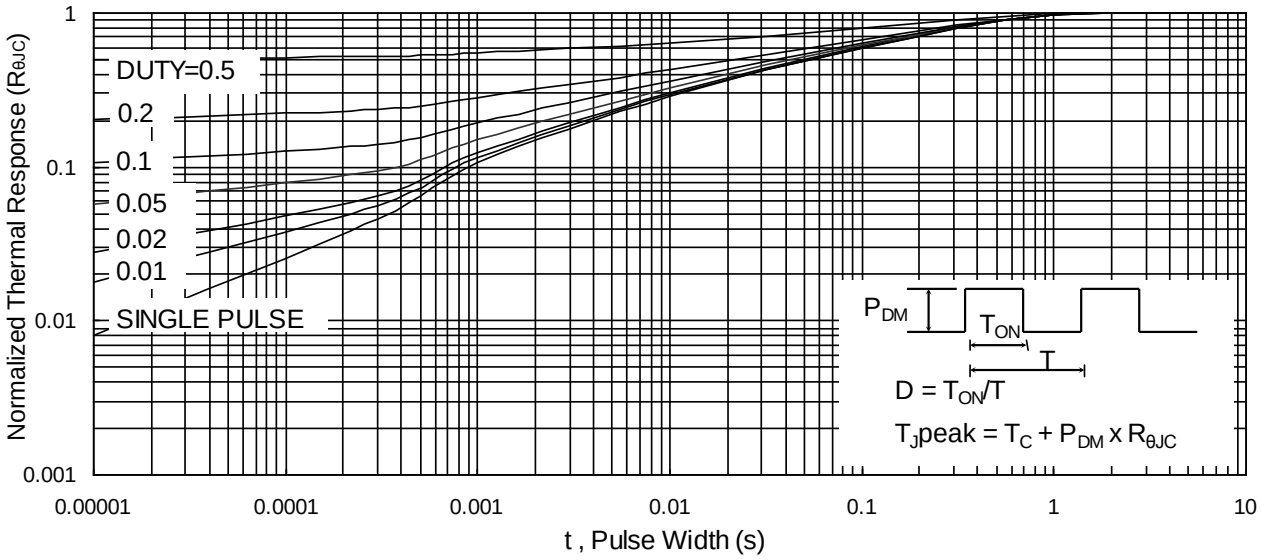


Fig.9 Normalized Maximum Transient Thermal Impedance

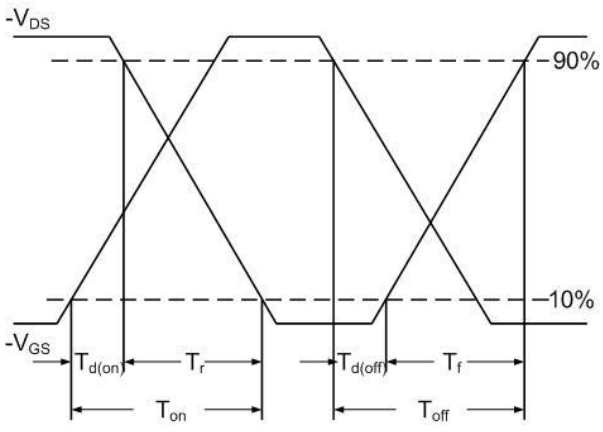


Fig.10 Switching Time Waveform

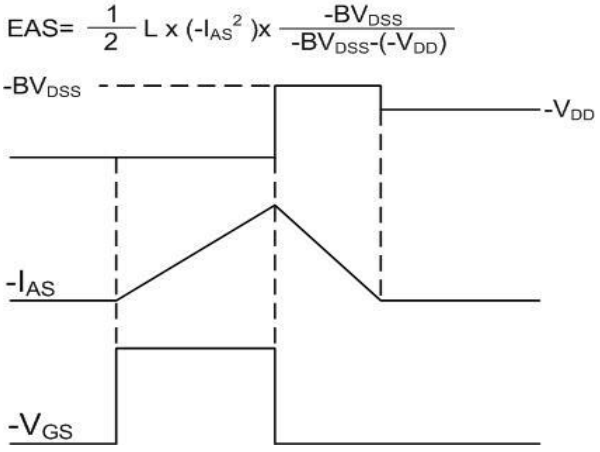


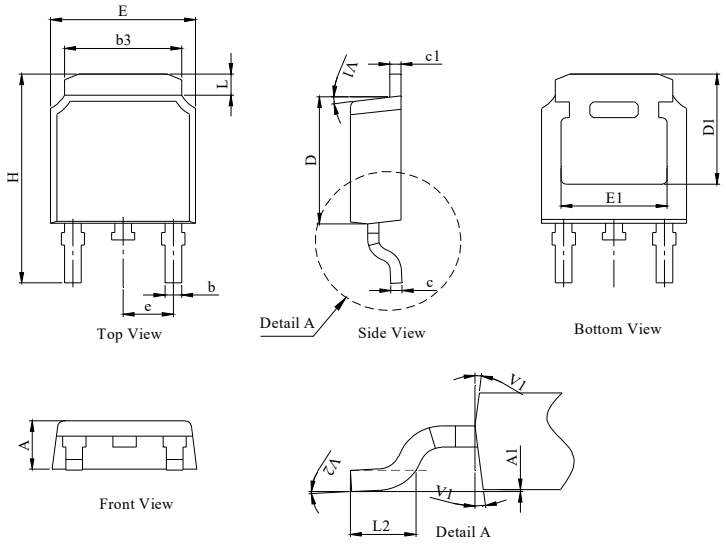
Fig.11 Unclamped Inductive Switching Waveform

V2.0

TO-252 Package Information

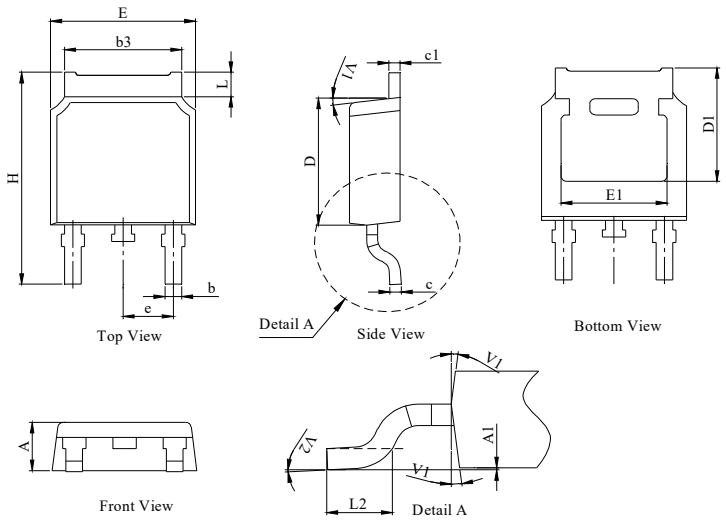
Package Outline Type-A

UNIT: mm



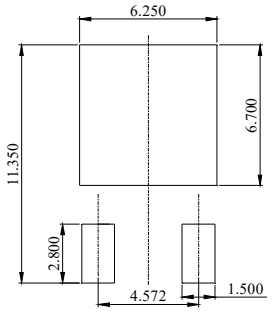
DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.18	2.30	2.39
A1	0	--	0.13
b	0.64	0.76	0.89
c	0.40	0.50	0.61
c1	0.46	0.50	0.58
D	5.97	6.10	6.23
D1	5.05	--	--
E	6.35	6.60	6.73
E1	4.32	--	--
b3	5.21	5.38	5.55
e	2.29 BSC		
H	9.40	10.00	10.40
L	0.89	--	1.27
L2	1.40	--	1.78
V1	7° REF		
V2	0°	--	6°

Package Outline Type-B



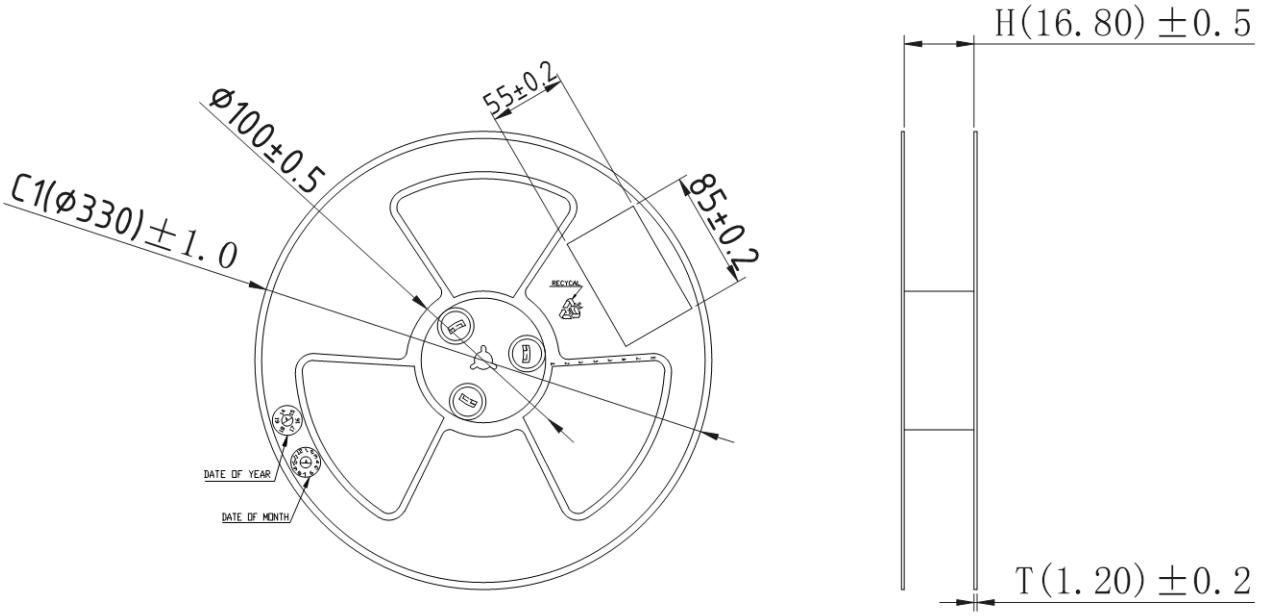
DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.10	2.30	2.40
A1	0	--	0.13
b	0.66	0.76	0.86
b3	5.21	5.38	5.55
c	0.40	0.50	0.60
c1	0.44	0.50	0.58
D	5.90	6.10	6.30
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.29 BSC		
H	9.50	10.00	10.70
L	1.09	--	1.21
L2	1.35	--	1.65
V1	7° REF		
V2	0°	--	6°

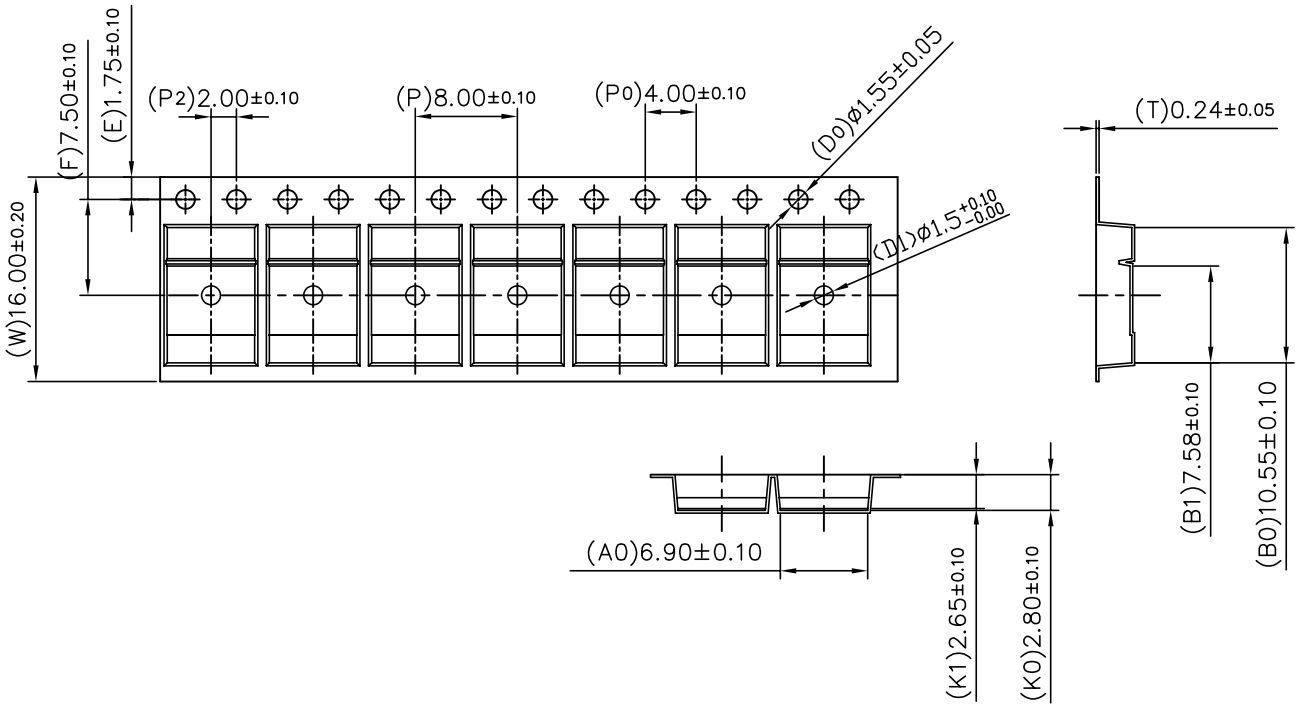
Recommended Soldering Footprint



Tape & Reel Information

Dimensions in mm





Marking Information：

①. Doingter LOGO

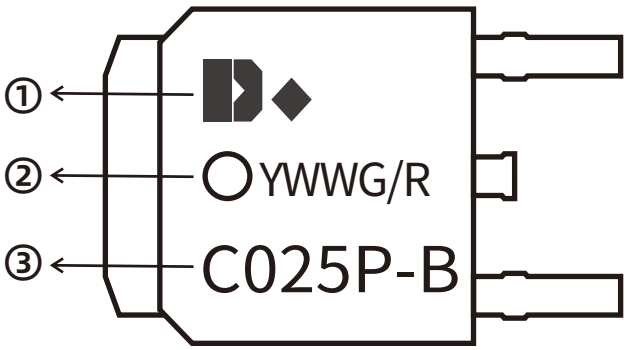
②. Date Code(YWWG / R)

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)
2.0	2024-09-11	Release of final version

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