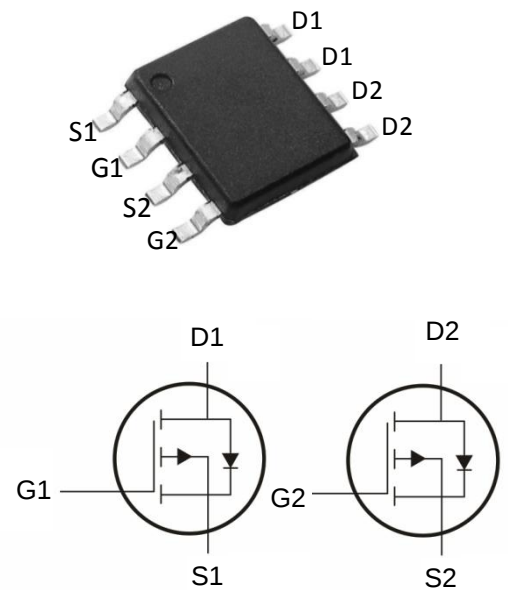


Description:

This Dual 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) $V_{DS}=-40V, I_D=-9A, R_{DS(ON)}<16m\Omega @V_{GS}=-10V$ (Typ : $12m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.
- 6) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOS9DP04	9DP04	SOP-8D	3000 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^\circ\text{C}$ 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	-9	A
	Continuous Drain Current- $T_C=100^\circ\text{C}$	-6.5	
	Pulsed Drain Current ¹	-36	
P_D	Power Dissipation $T_C=25^\circ\text{C}$	2.5	W
E_{AS}	Single pulse avalanche energy ²	120	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case ¹	2.5	$^\circ\text{C}/\text{W}$

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 μ A	-40	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-40V	---	---	-1	μ A
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 =-250 μ A	-1.1	-1.7	-2.5	V
R _{DS(ON)}	Drain-Source On Resistance ³	V _{GS} =-10V, I _D =-9A	---	12	16	m Ω
		V _{GS} =-4.5V, I _D =-6A	---	17	22	
G _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-5A	15	---	---	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-20V, V _{GS} =0V, f=1MHz	---	2050	---	pF
C _{oss}	Output Capacitance		---	260	---	
C _{rss}	Reverse Transfer Capacitance		---	150	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =-20V, R _L =1.6 Ω R _{GEN} =3 Ω , V _{GS} =-10V	---	10	---	ns
t _r	Rise Time		---	24	---	ns
t _{d(off)}	Turn-Off Delay Time		---	40	---	ns
t _f	Fall Time		---	9	---	ns
Q _g	Total Gate Charge	V _{GS} =-10V, V _{DS} =-20V, I _D =-8A	---	45	---	nC
Q _{gs}	Gate-Source Charge		---	6	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	11	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage	V _{GS} =0V, I _S =-10A,	---	---	-1.2	V
I _{SD}	Source-Drain Current(Body Diode)	V _D =V _G =0V	---	---	-9	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : $T_J=25^{\circ}\text{C}$, $V_{DD}=20\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$
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)

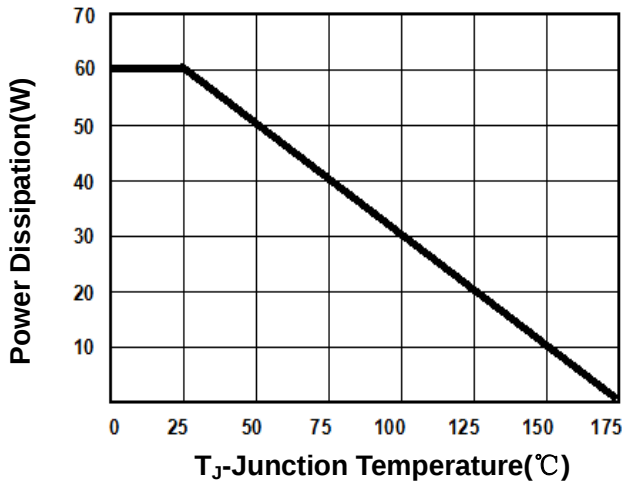


Figure1. Power Dissipation

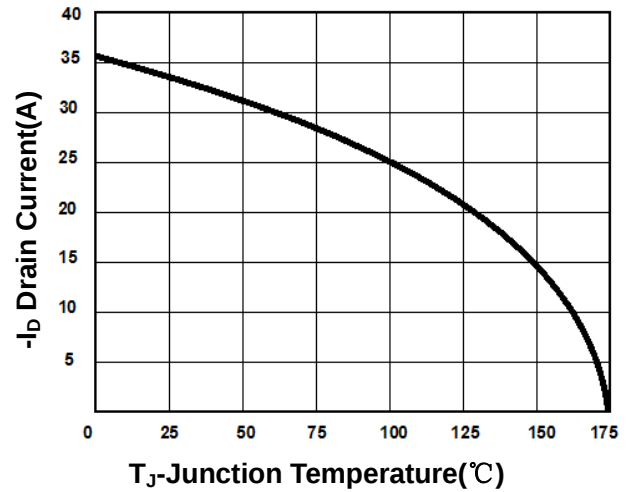


Figure2. Drain Current

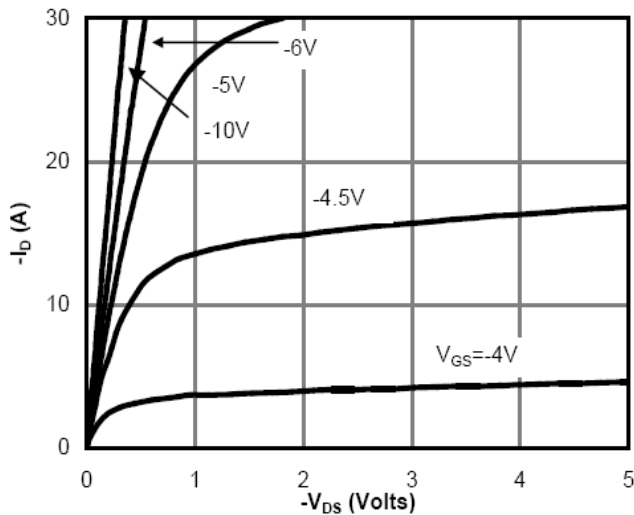


Figure3. Output Characteristics

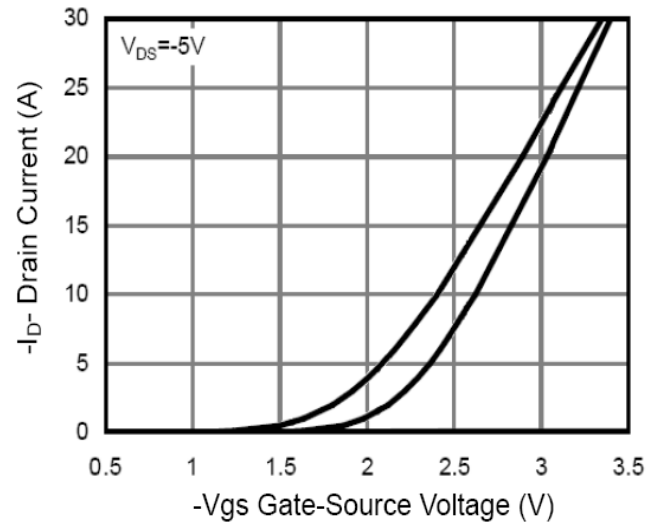
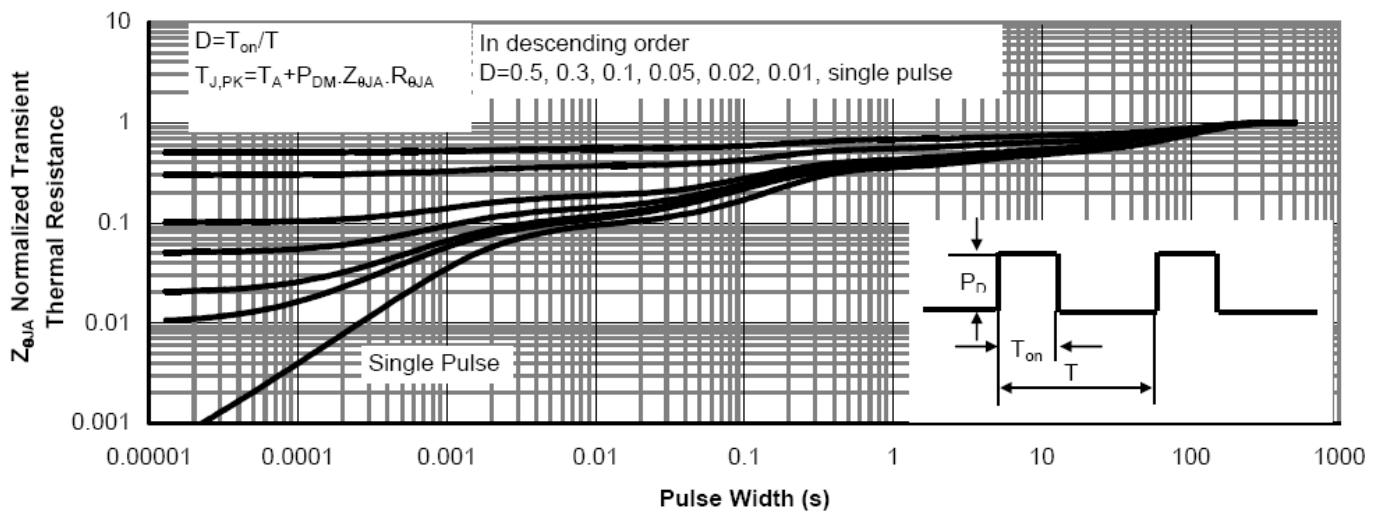
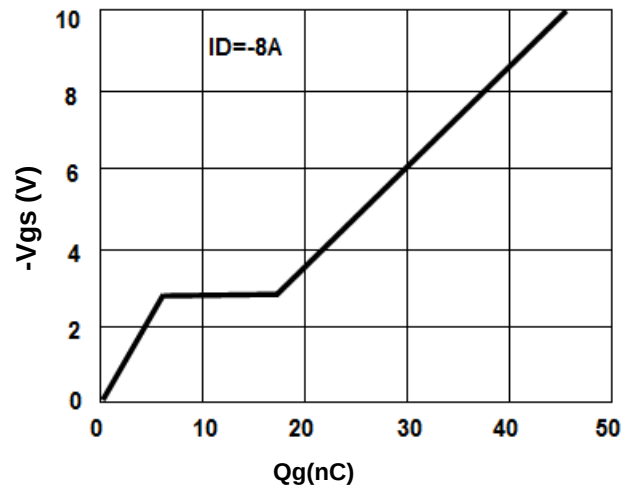
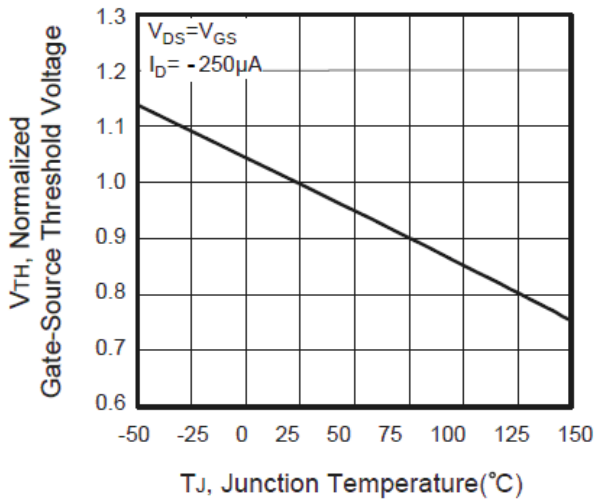
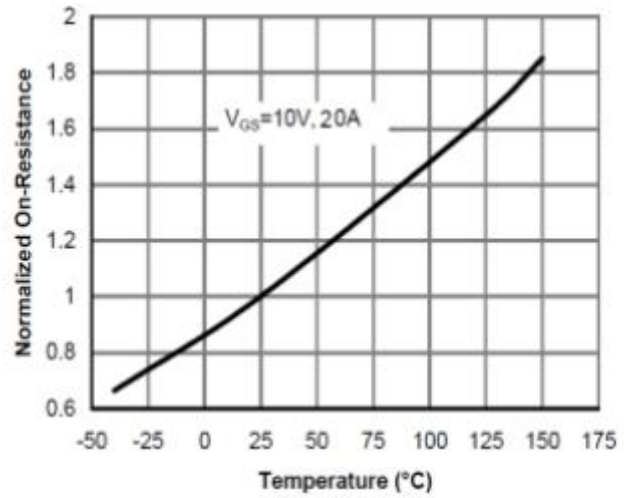
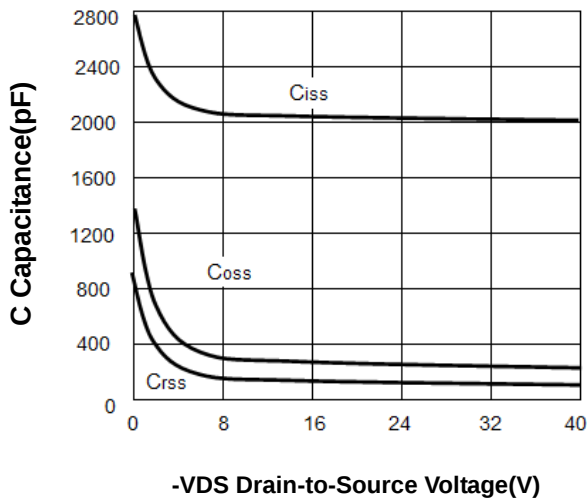
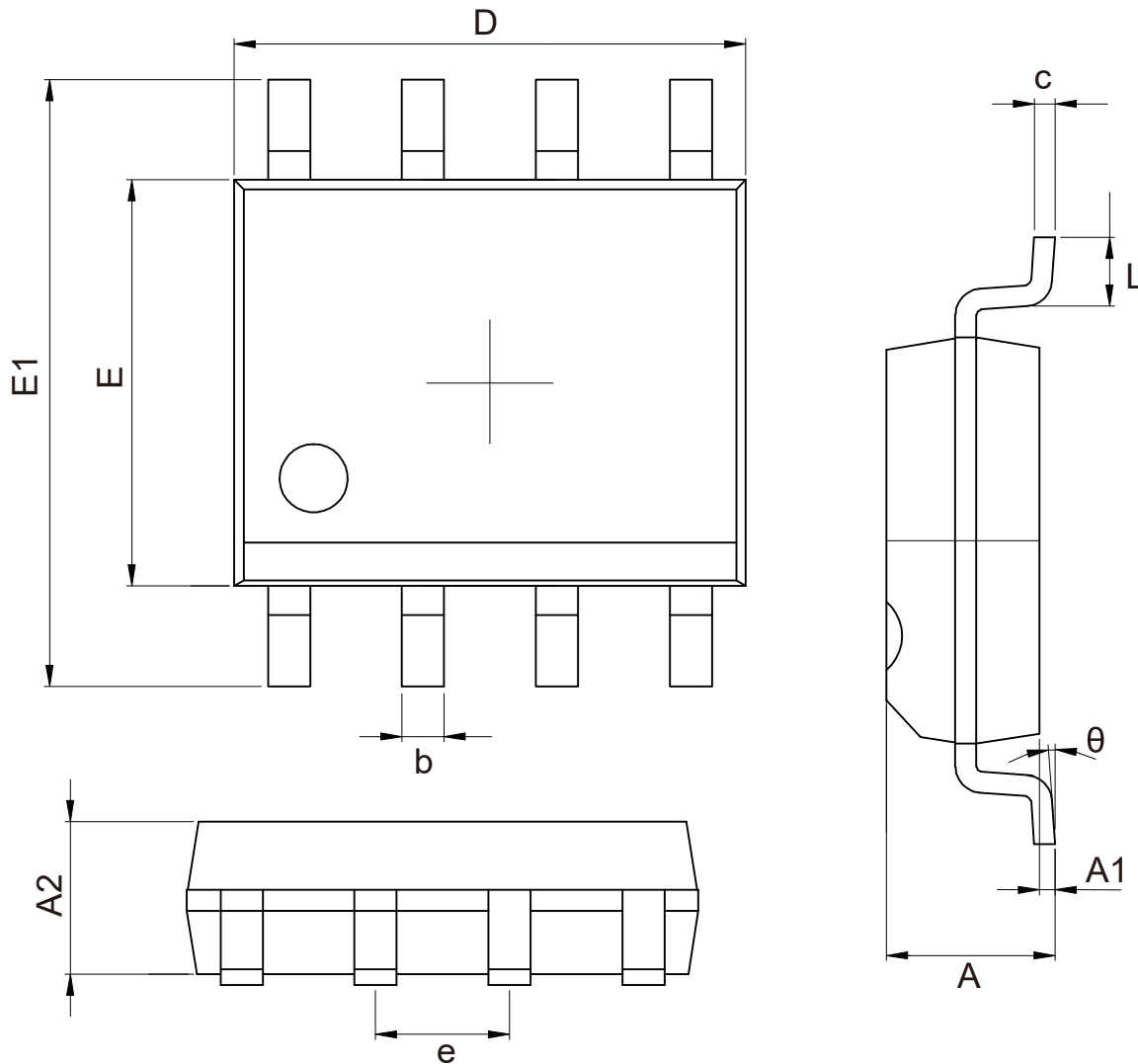


Figure4. Transfer Characteristics



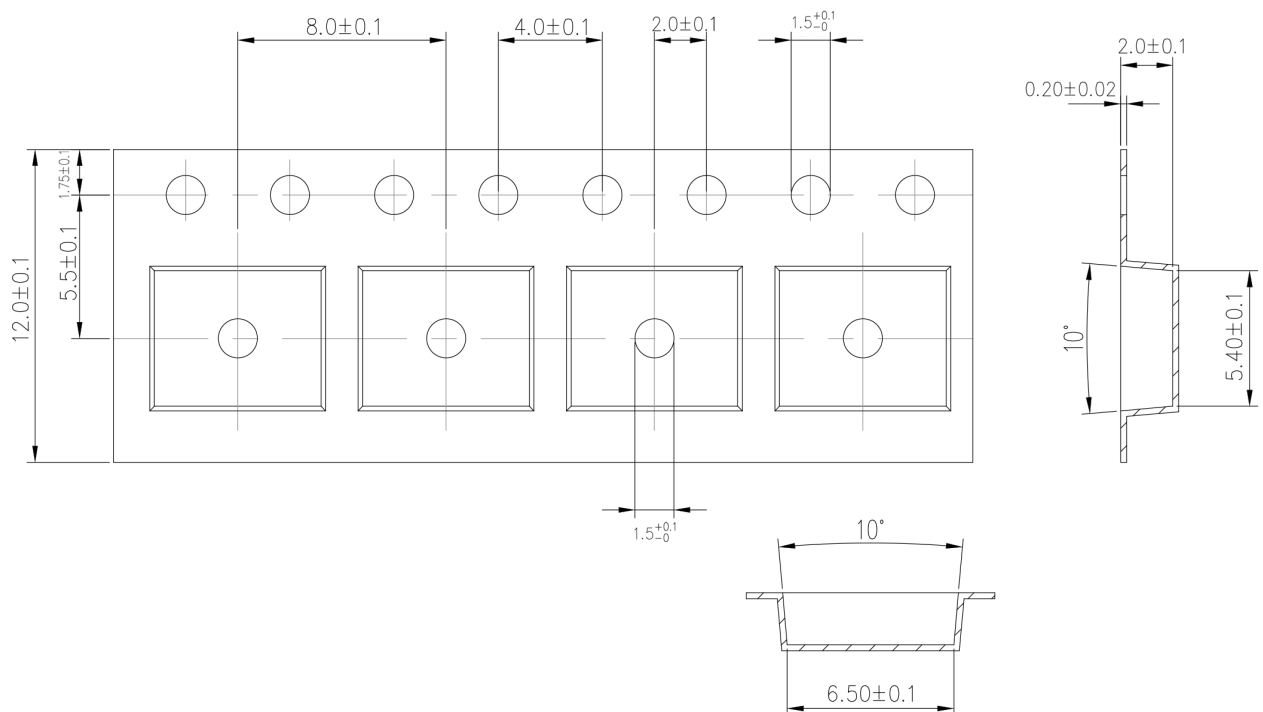
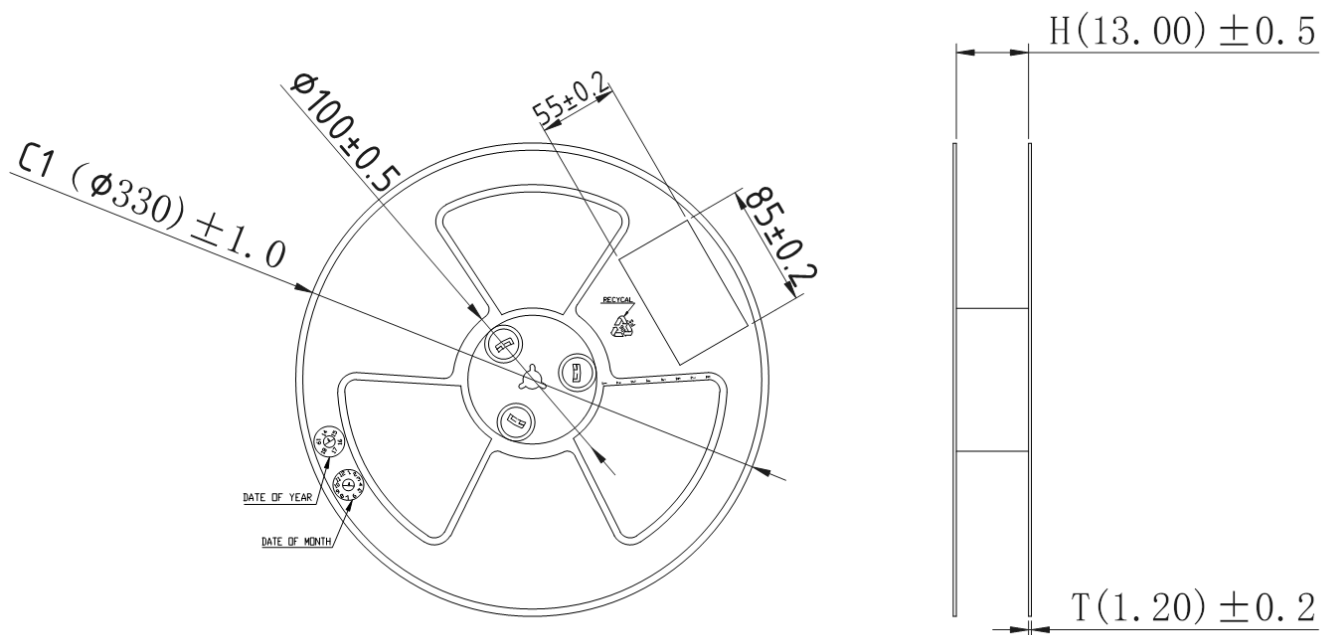
SOP-8DPackage Information:


COMMON DIMENSIONS			
CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	1.350	—	1.750
A1	0.100	—	0.250
A2	1.350	—	1.550
b	0.330	—	0.510
c	0.170	—	0.250
D	4.700	—	5.100
E	3.800	3.900	4.000
E1	5.800	—	6.200
e	1.270BSC		
L	0.400	—	1.270
θ	0°	—	8°

Unit:mm

Tape & Reel Information

Dimensions in mm



Pulling direction 

Marking Information:

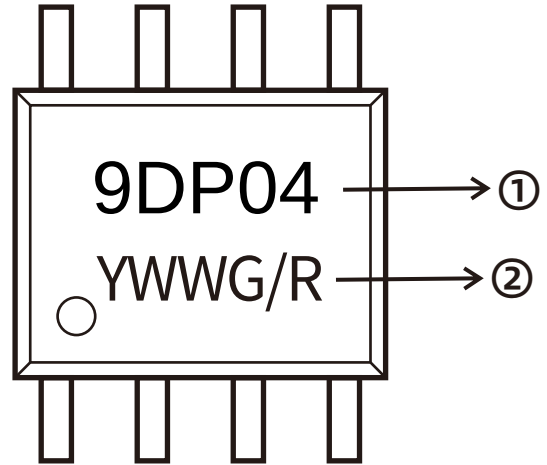
①. Part NO.

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)

**Previous Version**

Version	Date	Subjects (major changes since last revision)
1.0	2024-09-21	Release of final version

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