

Description:

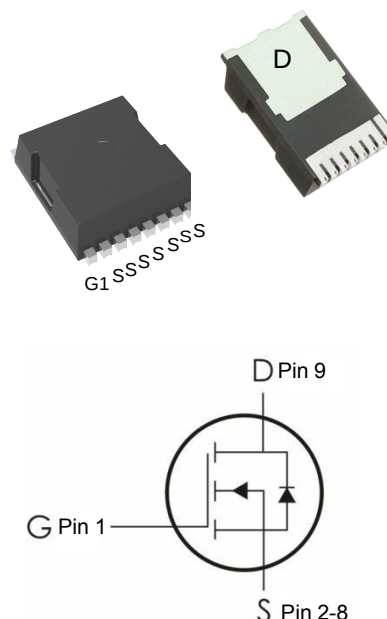
This N-Channel MOSFET uses advanced SGT technology and

design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=40V, I_D=360A, R_{DS(ON)} < 0.7m\Omega @ V_{GS}=10V$ (Typ: $0.5m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density SGT 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
DOL360N04T	360N04T	TOLLA-8	2000 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 ¹	360	A
	Continuous Drain Current- $T_C=100^{\circ}\text{C}$ ¹	252	
I_{DM}	Pulsed Drain Current ²	1440	
P_D	Power Dissipation	600	W
E_{AS}	Single pulse avalanche energy ³	1352	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+175	$^{\circ}\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.45	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	32.8	$^{\circ}\text{C}/\text{W}$

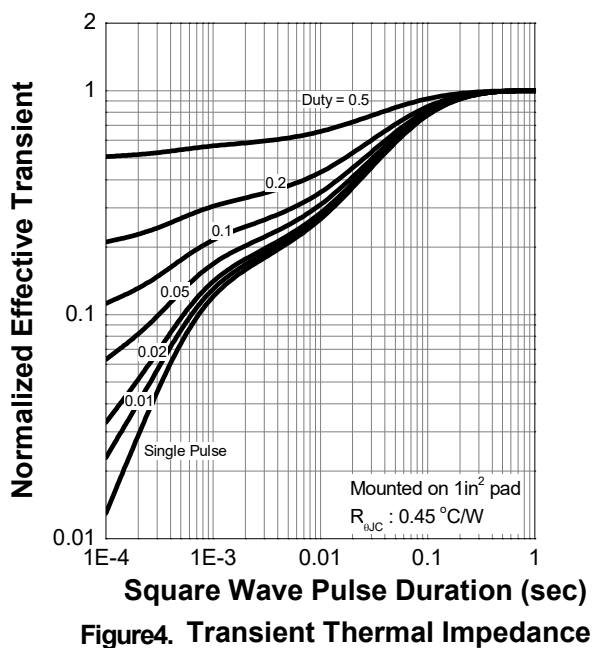
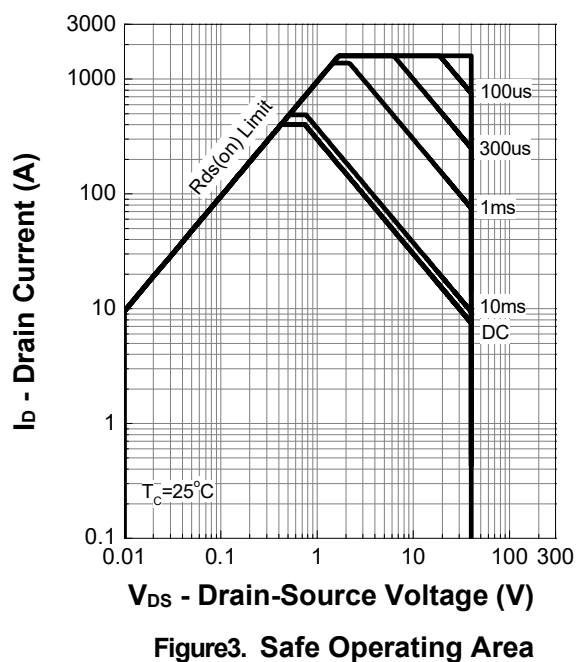
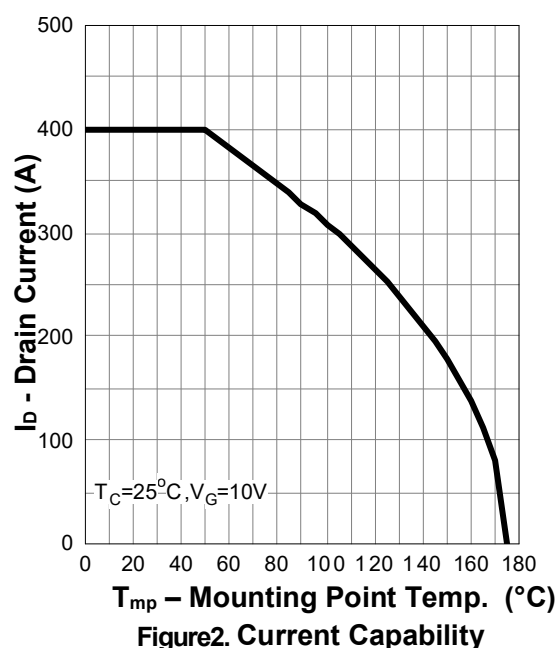
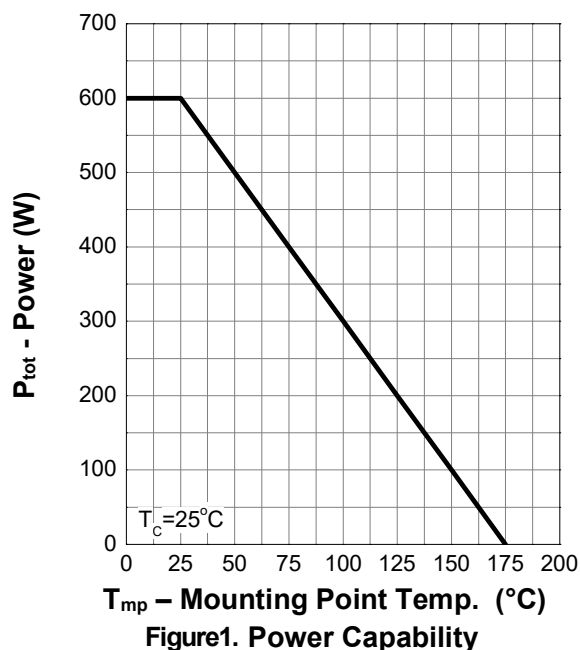
Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce 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	1.7	2	V
R _{DS(ON)}	Drain-Source On Resistance ⁴	V _{GS} =10V, I _D =20A	---	0.5	0.7	m Ω
		V _{GS} =4.5V, I _D =10A	---	0.68	0.88	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	---	10000	---	pF
C _{oss}	Output Capacitance		---	4800	--	
C _{rss}	Reverse Transfer Capacitance		---	200	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =20V, I _D =50A, R _{ENG} =4.5 Ω ,V _{GS} =10V	---	25	---	ns
t _r	Rise Time		---	97.6	---	ns
t _{d(off)}	Turn-Off Delay Time		---	91.3	---	ns
t _f	Fall Time		---	84	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =20V, I _D =50A	---	180	---	nC
Q _{gs}	Gate-Source Charge		---	39.9	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	32.5	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =50A	---	---	1.3	V
I _S	Continuous Drain Curren	V _D =V _G =0V	---	---	360	A
I _{SM}	Pulsed Drain Current		---	---	1440	A
T _{rr}	Reverse Recovery Time	I _F =50A, T _J =25 °C	---	97	---	ns
Q _{rr}	Reverse Recovery Charge	dl/dt=100A/us	---	162	---	nC

Notes:

1. omputed 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 : $T_J=25^{\circ}C, V_{DD}=20V, V_G=10V, L=0.5mH$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

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



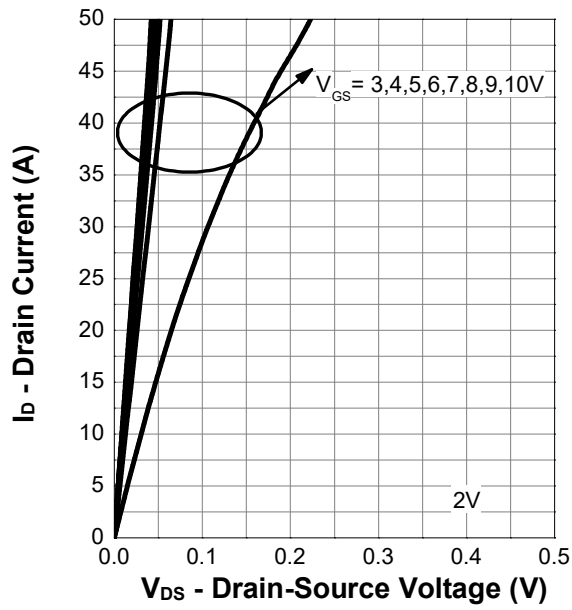


Figure5. Output Characteristics

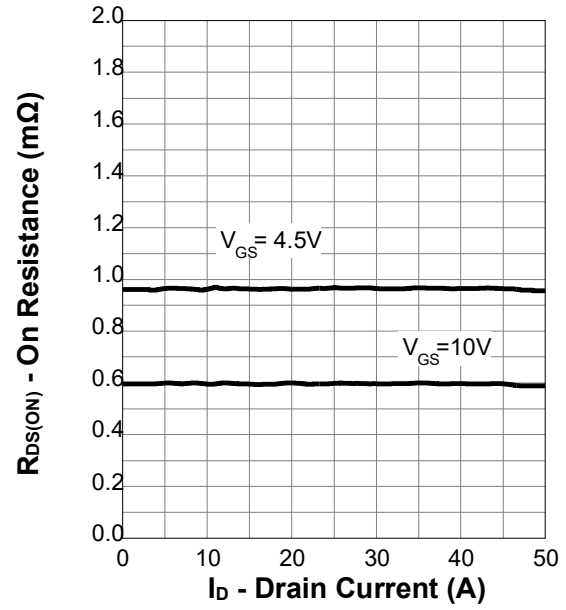


Figure6. On Resistance

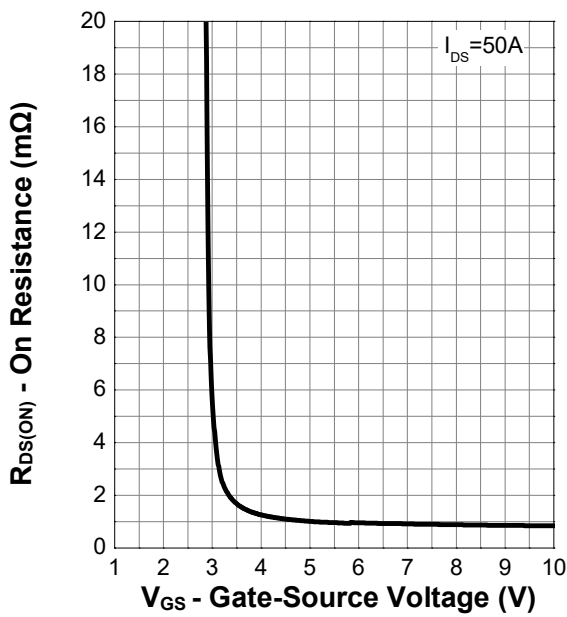


Figure7. Transfer Characteristics

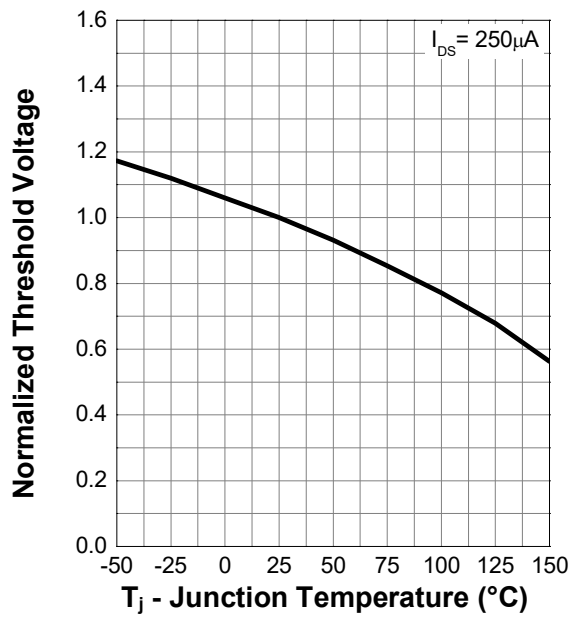


Figure8. Normalized Threshold Voltage

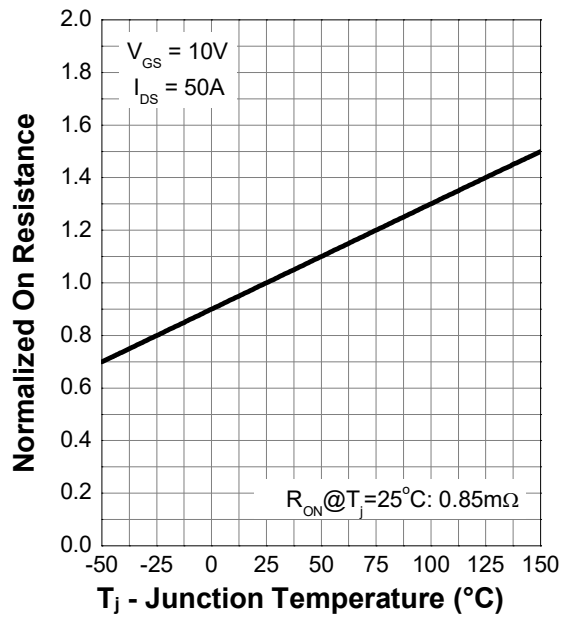


Figure9. Normalized On Resistance

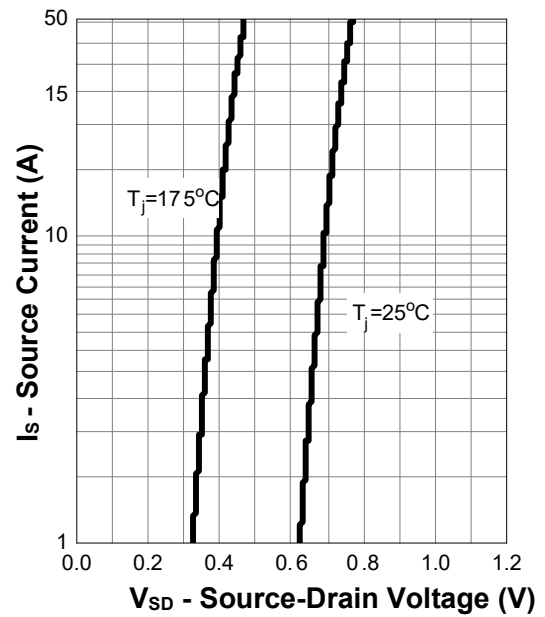


Figure10. Diode Forward Current

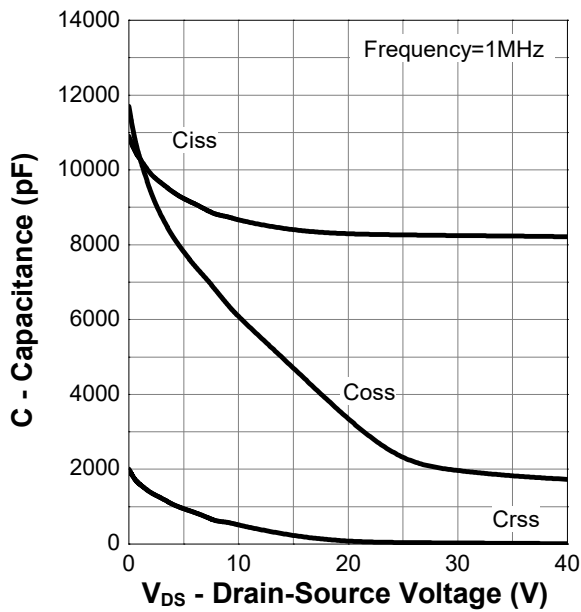


Figure11. Capacitance

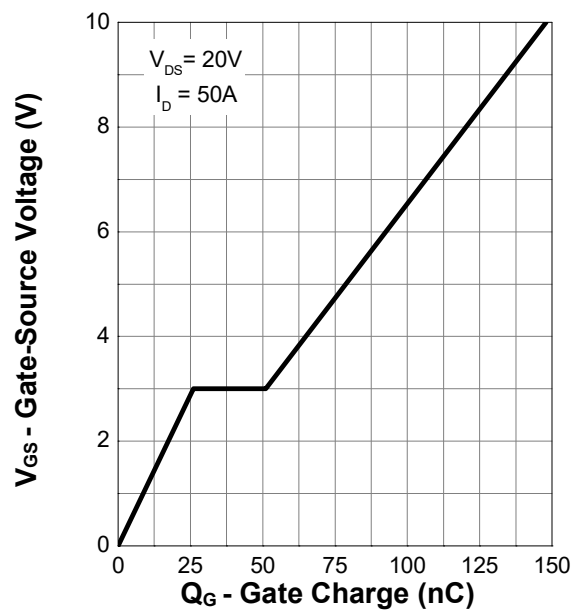
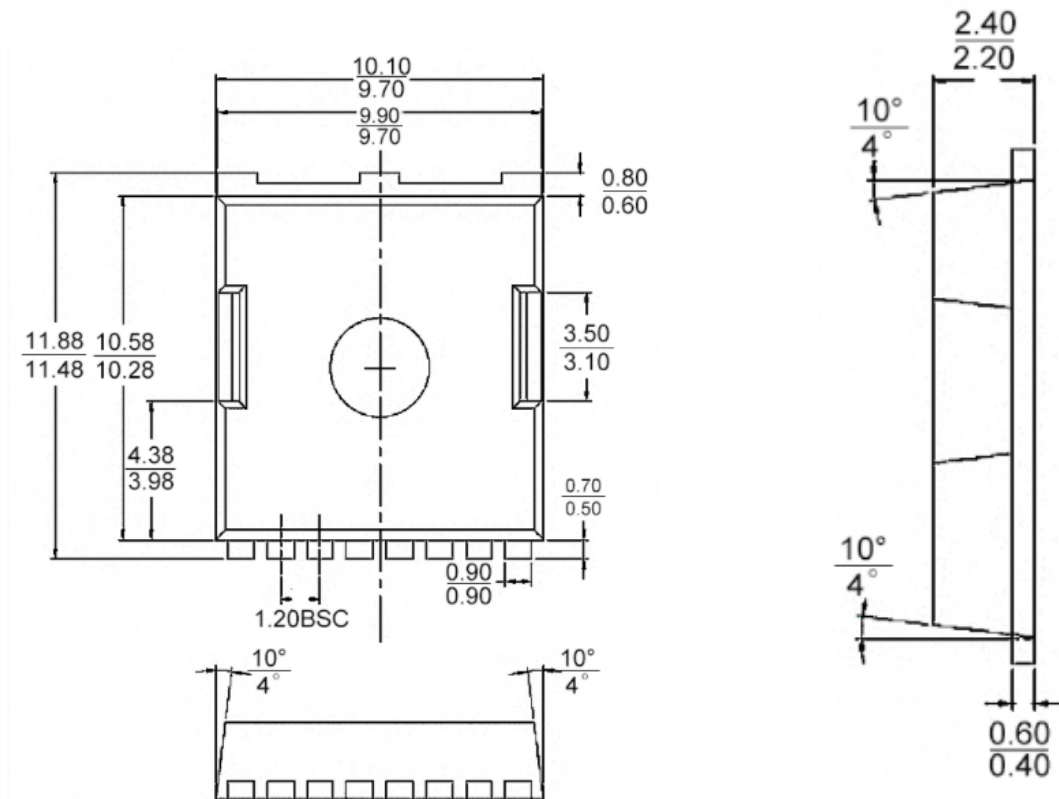
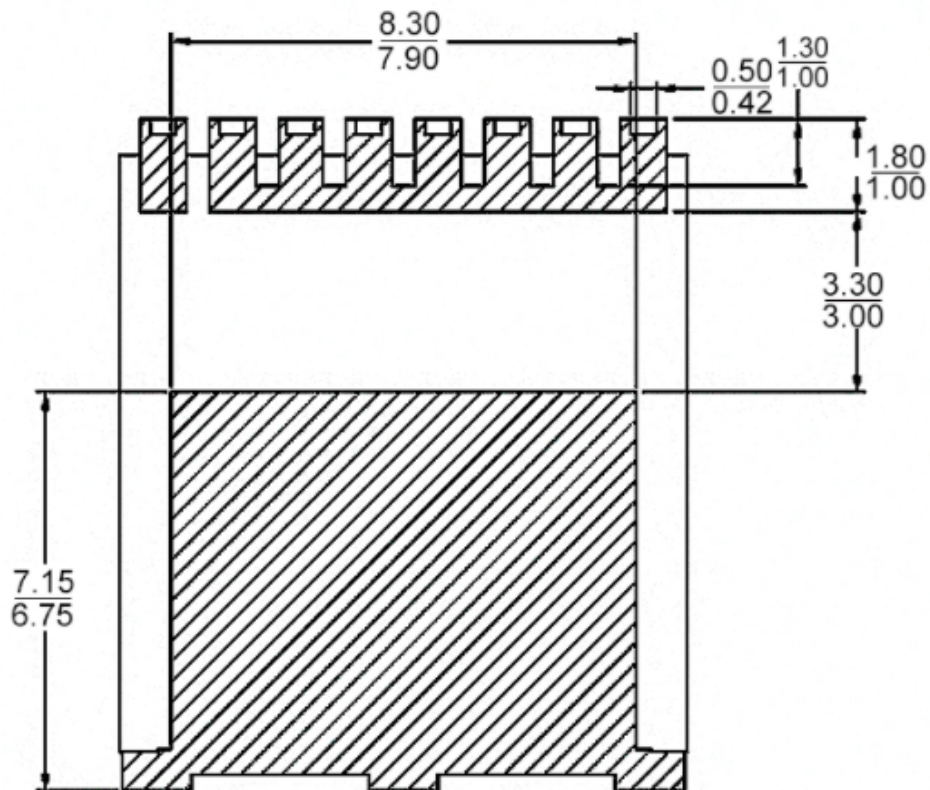


Figure12. Gate Charge

TOLLA-8 Package Information

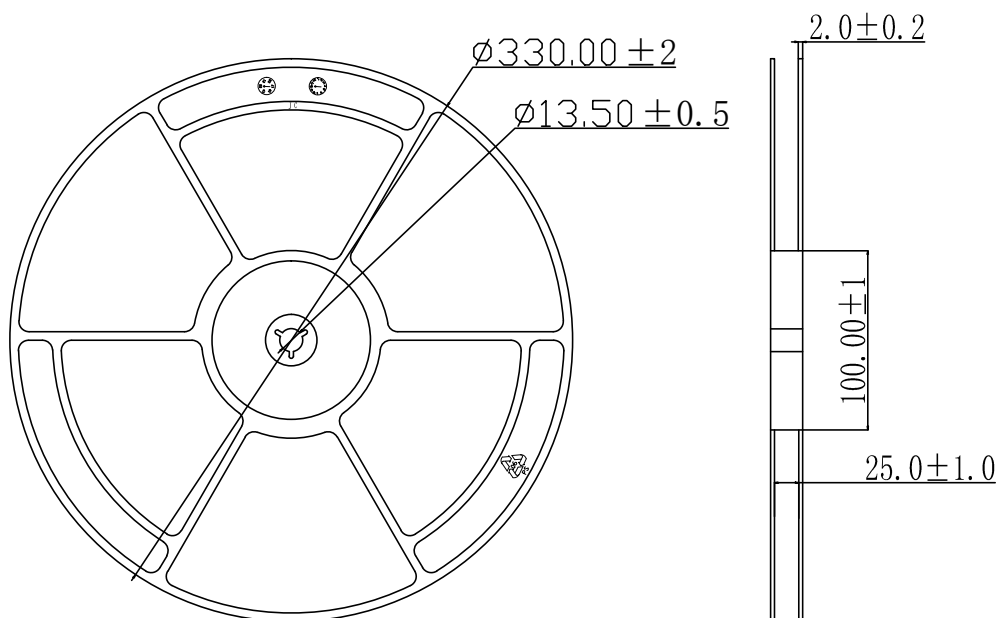


UNIT: mm

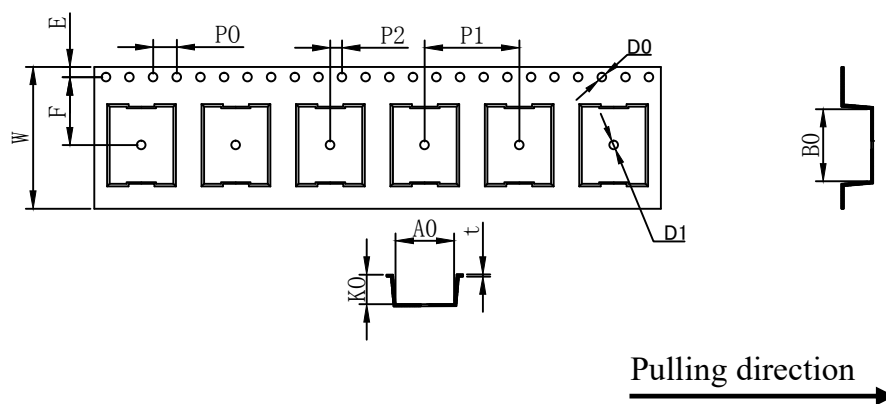


Tape & Reel Information

Dimensions in mm



ITEM	A0	B0	D0	D1	E	F
TOLR	10.2 ± 0.1	12.05 ± 0.1	1.5 ± 0.1	1.5 ± 0.25	1.75 ± 0.1	11.5 ± 0.1
ITEM	W	t	K0	P0	P1	P2
TOLR	$24^{+0.3}_{-0.15}$	0.30 ± 0.05	2.55 ± 0.1	4.0 ± 0.1	12.0 ± 0.1	2.0 ± 0.1



Package Information:

①. Doingter LOGO

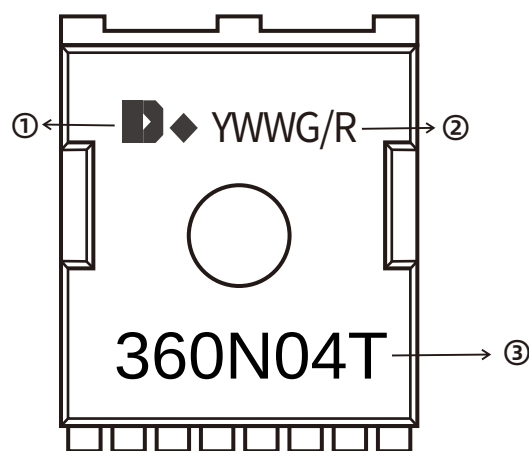
②. Date Code(YWWG / R)

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	2025-04-08	Release of final version

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