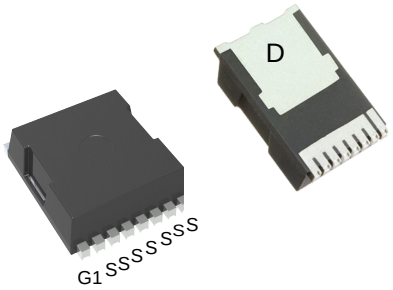
Description：

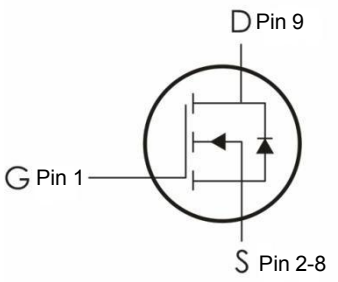
This N-Channel MOSFET uses advanced SGT technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=60V,I_D=350A,$R_{DS(ON)}$<1.3mΩ @V_{GS}=10V（Typ：1mΩ）
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity 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
LE1R3TFG	E1R3TF	TOLLA-8	2000 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current[1]	350	A
	Continuous Drain Current-T_C=100℃[1]	245	
I_{DM}	Pulsed Drain Current [2]	1050	
P_D	Power Dissipation	290	W
E_{AS}	Single pulse avalanche energy [3]	756	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	0.43	℃/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	60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=60V	---	---	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	2	3	4	V
$R_{DS(ON)}$	Drain-Source On Resistance[4]	V_{GS}=10V,I_D=20A	---	1	1.3	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=30V, V_{GS}=0V, f=100KHz	---	6500	---	pF
C_{oss}	Output Capacitance		---	2639	--	
C_{rss}	Reverse Transfer Capacitance		---	69	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=30V, I_D=30A, R_{ENG}=3Ω,V_{GS}=10V	---	36.7	---	ns
t_r	Rise Time		---	76.6	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	79.8	---	ns
t_f	Fall Time		---	82	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=30V, I_D=30A	---	130	---	nC
Q_{gs}	Gate-Source Charge		---	45	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	17.8	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=30A	---	---	1.2	V
I_S	Continuous Drain Curren	V_D=V_G=0V	---	---	291.6	A
I_{SM}	Pulsed Drain Current		---	---	875	A
Trr	Reverse Recovery Time	I_F=30A,T_J=25℃ dI/dt=100A/us	---	90	---	ns
Qrr	Reverse Recovery Charge		---	125	---	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 : TJ=25℃,VDD=30V,V_G=10V,L=0.5mH
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Test Circuit

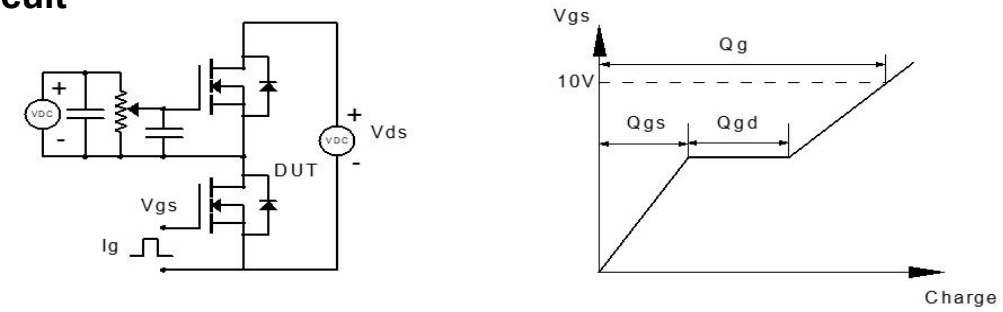


Figure 1: Gate Charge Test Circuit & Waveform

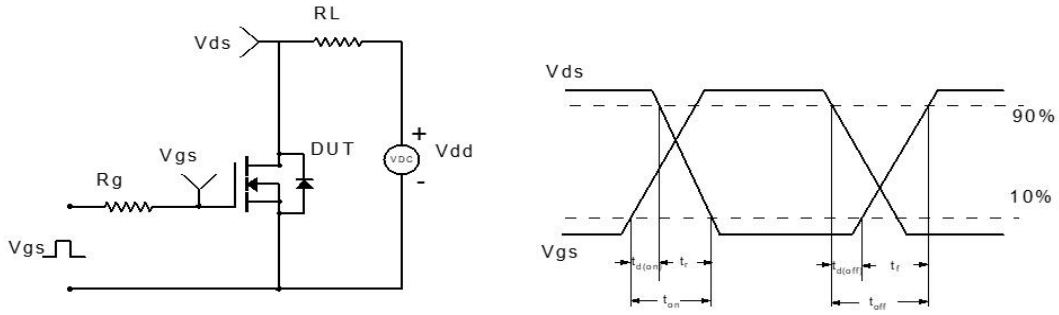


Figure 2: Resistive Switching Test Circuit & Waveform

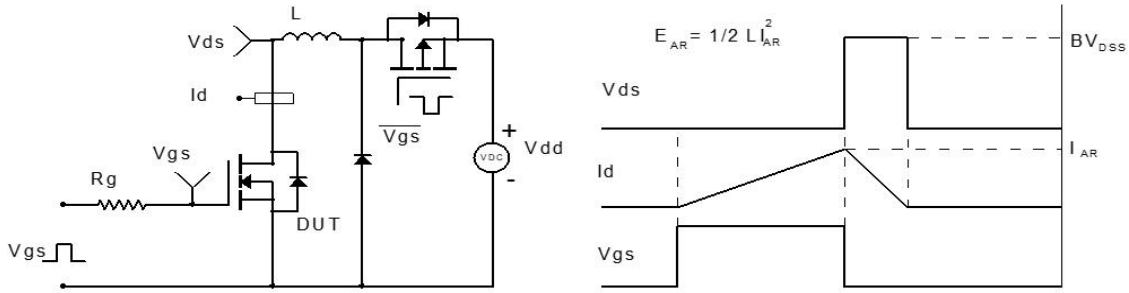


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

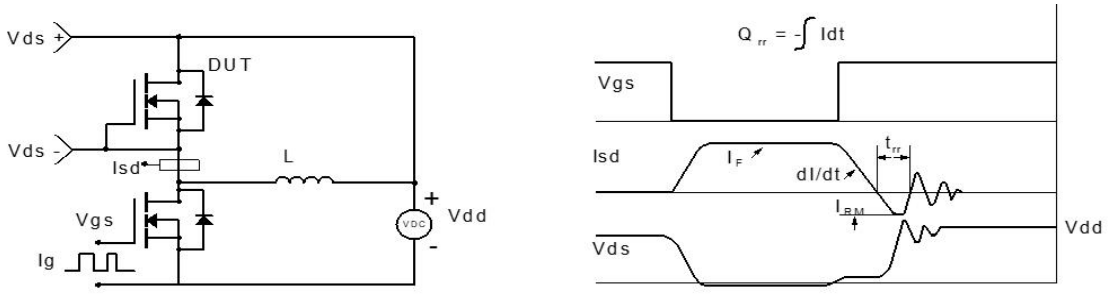
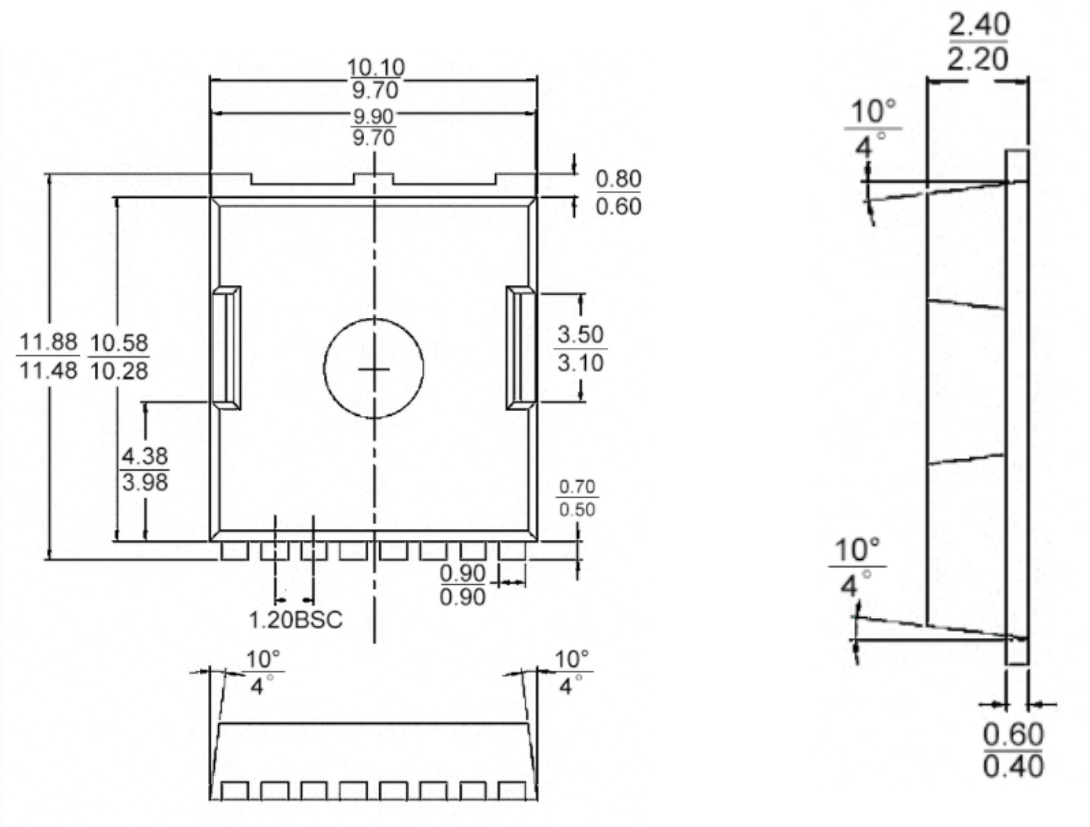
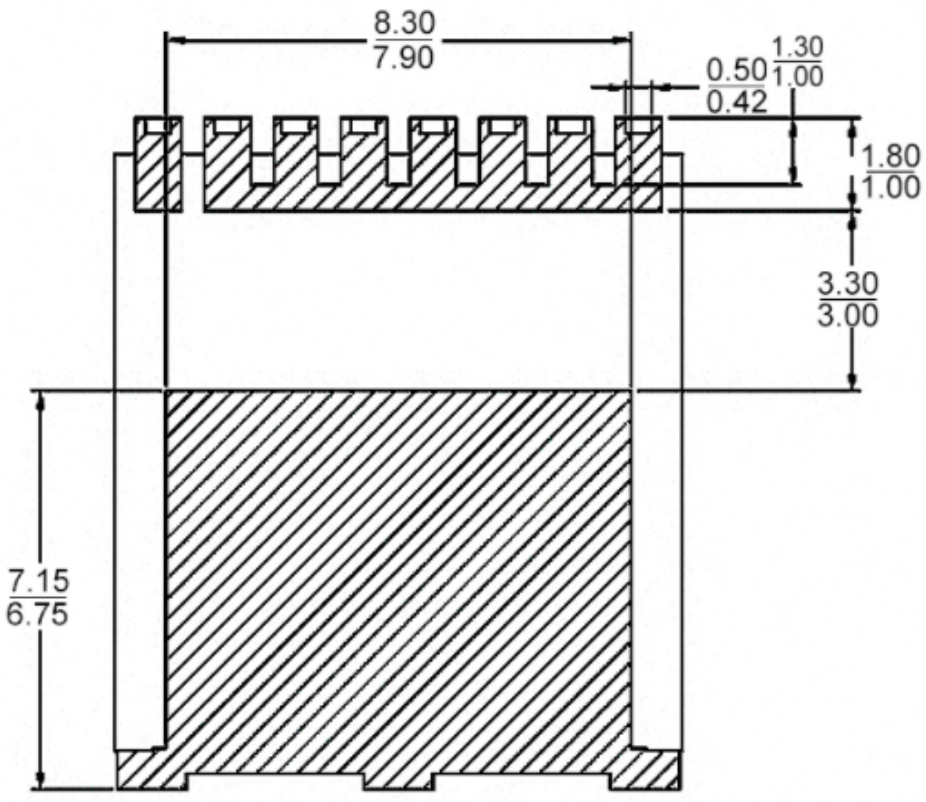


Figure 4: Diode Recovery Test Circuit & Waveform

TOLLA-8 Package Information

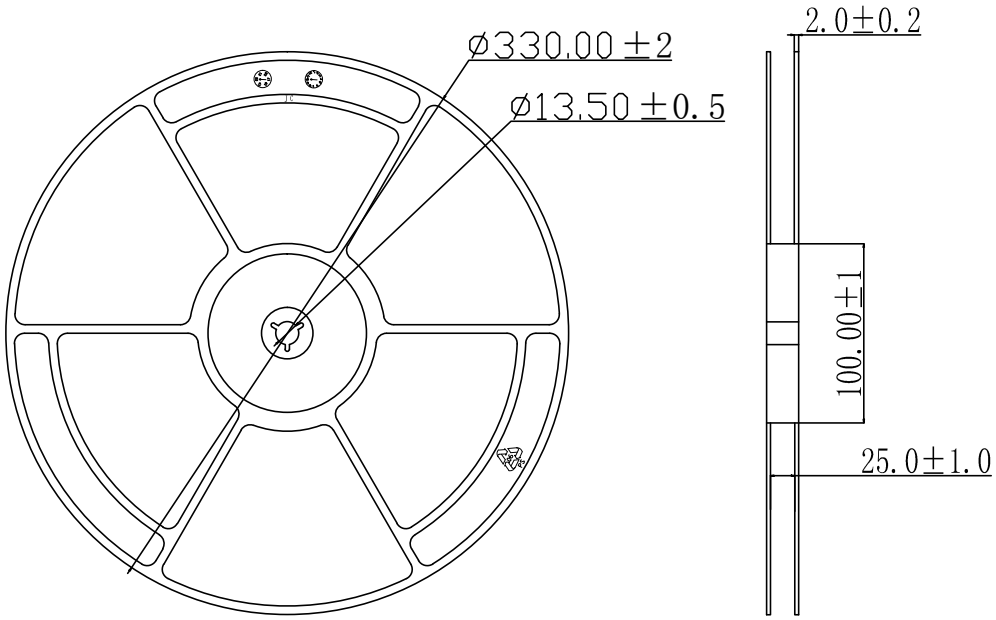


UNIT: mm

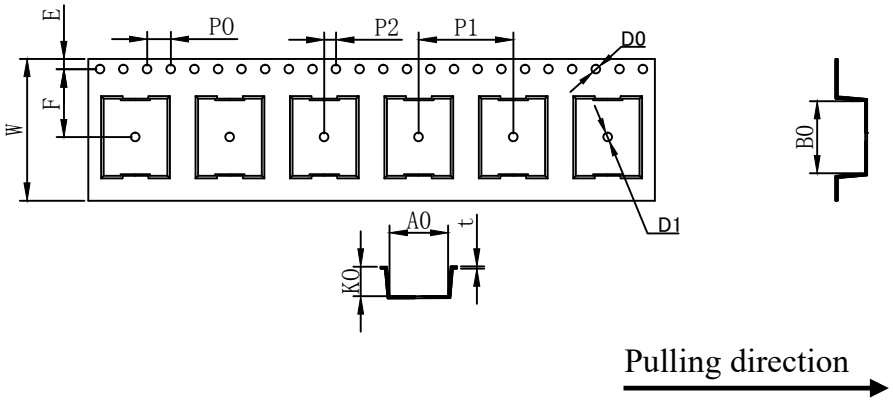


Tape & Reel Information

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

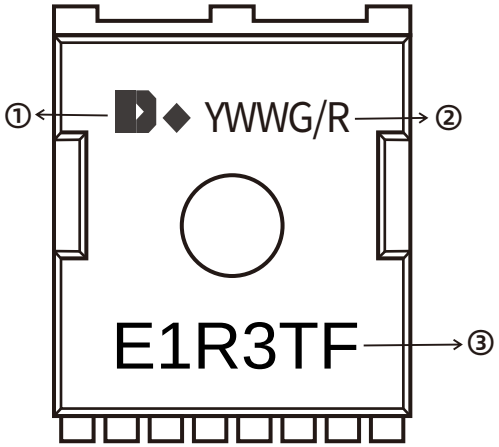
②. Date Code(YWWG / R)

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	2025-08-10	Release of final version

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