ZK100G325TL

N-channel Enhancement Mode Power MOSFET

Features

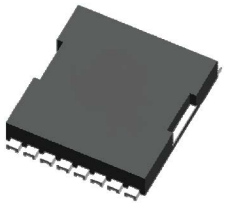
- Advanced Trench Technology
- Ultra-low RDS(ON)
- Lead free product is acquired
- 100% UIS TESTED!
- 100% ΔVds TESTED!

Product Summary

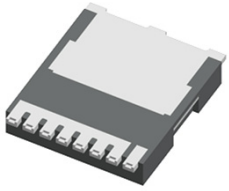
Parameters	Value	Unit
V_{DSS}	100	V
$V_{GS(th)\_Typ}$	2.8	V
I_D(@V_{GS}=10V)	411	A
$R_{DS(ON)\_Typ}$(@V_{GS}=10V	1.3	mΩ

Applications

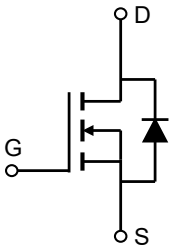
- Load Switch
- PWM Application
- Power Management



TOLL-8L Top View



TOLL-8L Bottom View



Schematic Diagram

Ordering Information

Device	Marking	Package	Packing	Reel Size	Tape Width	Reel (pcs)
ZK100G325TL	100G325	TOLL	Reel	N/A	N/A	2000

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25°C	I_D	411	A
	T_C = 100°C		290	
Pulsed Drain Current		I_{DM}	1243	A
Single Pulsed Avalanche Energy		E_{AS}	1250	mJ
Power Dissipation		P_D	500	W
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	35	℃/W
Operating Junction and Storage Temperature Range		T_J ,T_{stg}	-55 to 175	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D = 250uA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} = 80V, V_{GS} =0V			1.0	μA
Gate-body leakage current	I_{GSS}	V_{DS} = 0V, V_{GS} =±20V			±100	nA
On characteristics ④						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250uA	2.0	2.8	4.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		1.3	1.6	mΩ
Dynamic characteristics ④⑤						
Input capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V f =1MHz		9623		pF
Output capacitance	C_{oss}			2091		
Reverse transfer capacitance	C_{rss}			1.2		
Switching characteristics ④⑤						
Total gate charge	Q_g	V_{GS}=0 to 10V V_{DS}=50V, I_D=20A		155		nC
Gate-source charge	Q_{gs}			31		
Gate-drain charge	Q_{gd}			37		
Turn-on delay time	$t_{d(on)}$	V_{DS}=50V,R_L=2.5Ω V_{GS}=10V,R_{GEN}=6Ω		34		ns
Turn-on rise time	t_r			67		
Turn-off delay time	$t_{d(off)}$			145		
Turn-off fall time	t_f			111		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_S=1A			1.0	V
Continuous drain-source diode forward current	I_S ①				500	A
Pulsed drain-source diode forward current	I_{SM} ②				720	A
Reverse recovery time	trr	di/dt = 100A/μs, I_F = 15A		76		ns
Reverse recovery charge	Qrr			116		nC

Notes:

1.Computed continuous current assumes the condition of TJ_Max while the actual continuous current depends on the thermal & electro-mechanical application board design.
2.Continuous current rating is limited by the package used.
3.This single-pulse measurement was taken under TJ_Max = 175°C.
4.This single-pulse measurement was taken under the following condition [L = 1mH, VGS = 10V, VDS = 50V] while its value is limited by TJ_Max = 175°C.
5.The power dissipation PD is based on TJ_Max = 175°C.
6.This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

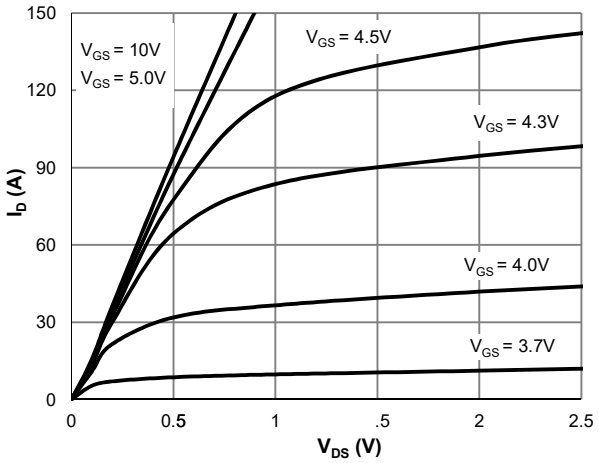


Figure 1: Saturation Characteristics

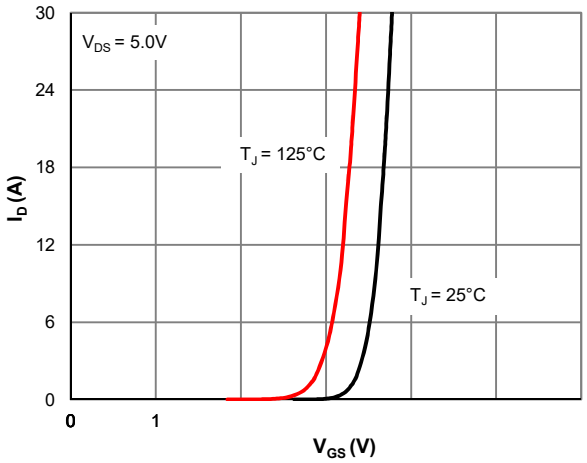


Figure 2: Transfer Characteristics

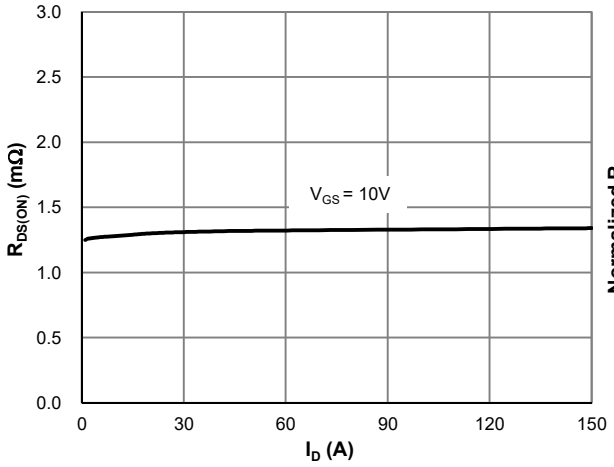


Figure 3: $R_{DS(ON)}$ vs. Drain Current

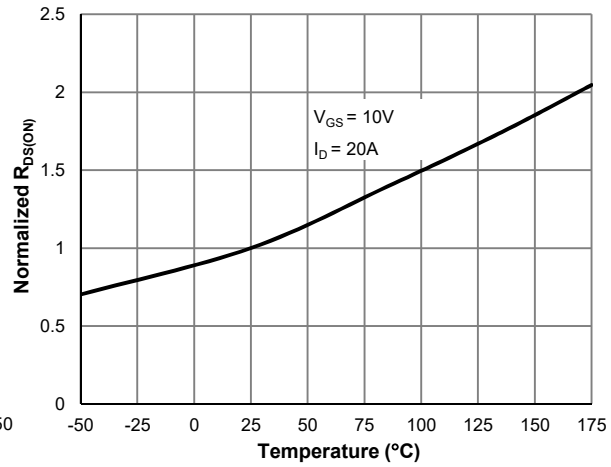


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

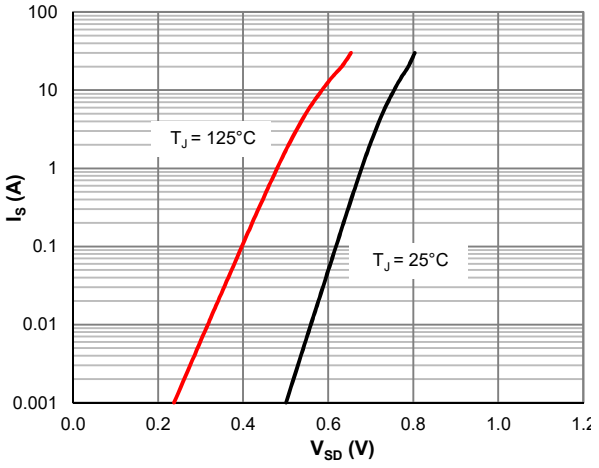


Figure 5: Body-Diode Characteristics

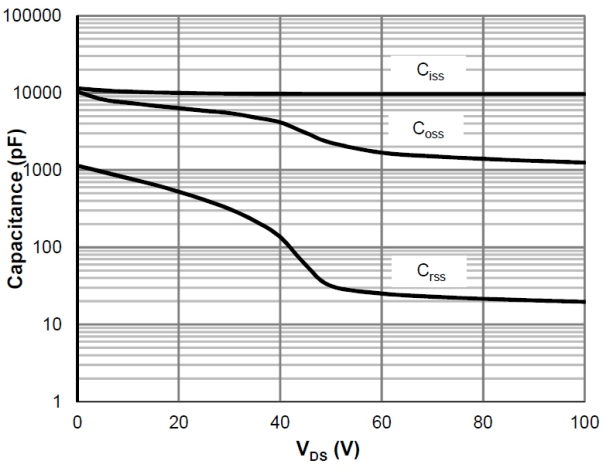


Figure 6: Capacitance Characteristics

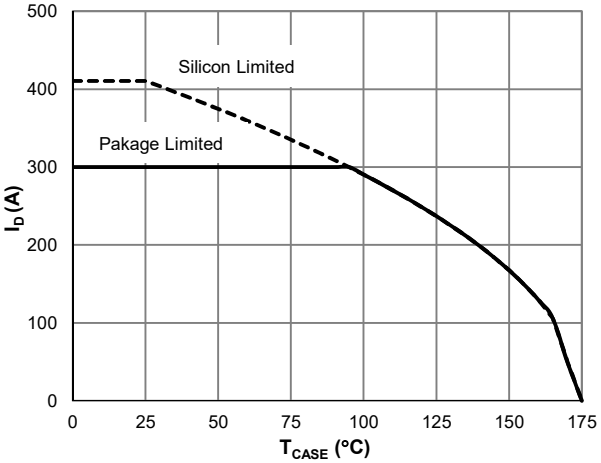


Figure 7: Current De-rating

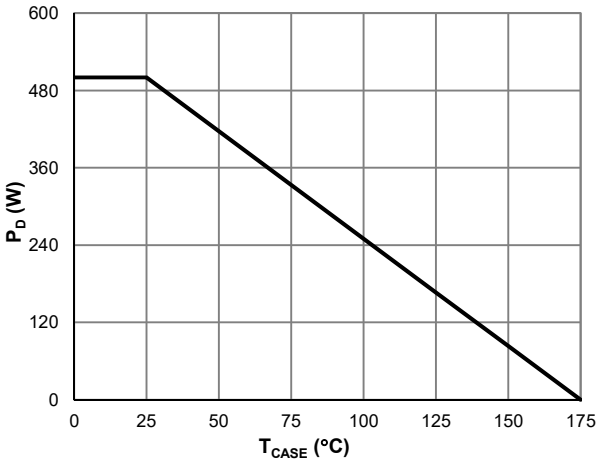


Figure 8: Power De-rating

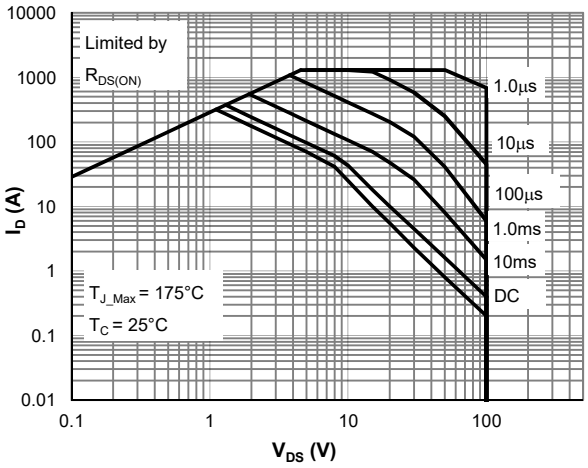


Figure 9: Maximum Safe Operating Area

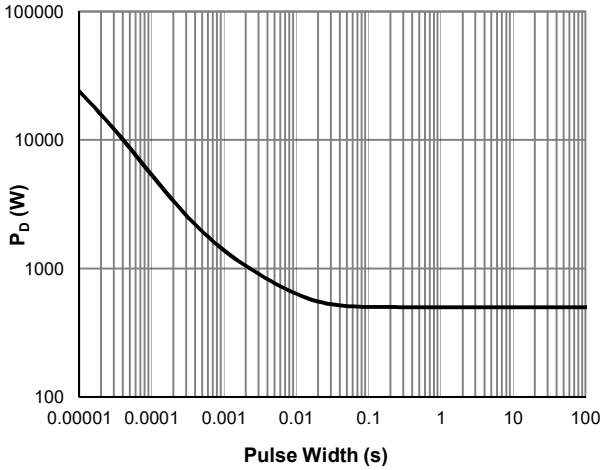


Figure 10: Single Pulse Power Rating, Junction-to-Case

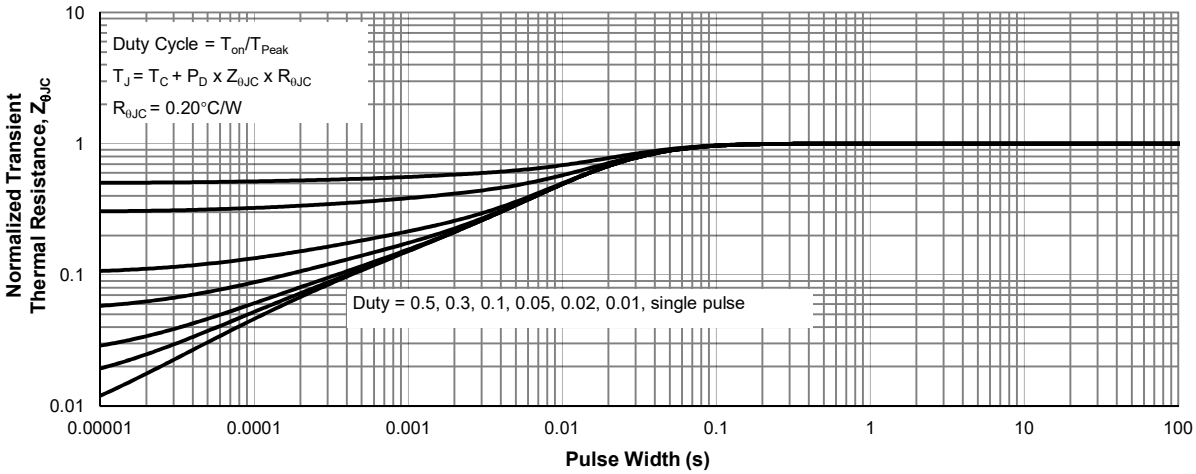
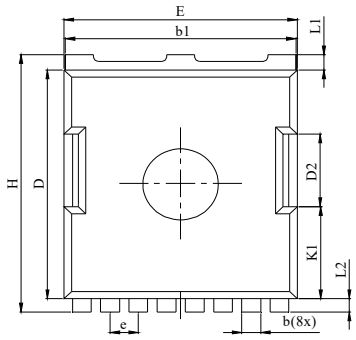


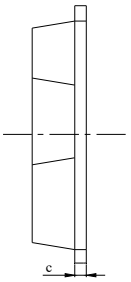
Figure 11: Normalized Maximum Transient Thermal Impedance

Package Mechanical Data(TOLL-8L)

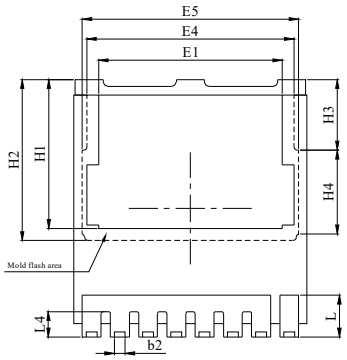
Package Outlines



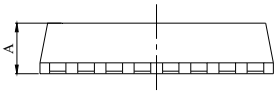
Top View



Side View



Bottom View



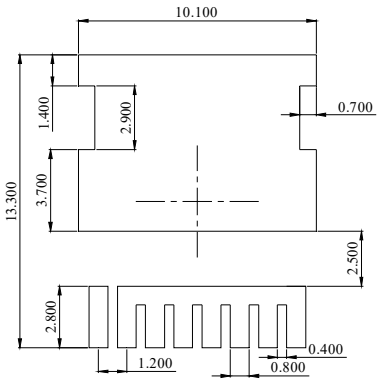
Front View

NOTES:

1. Dimension and tolerance per ASME Y14.5M, 1994.
2. All dimensions in millimeter.
3. Dimensions do not include burrs or mold flash. Mold flash or burrs does not exceed 0.150mm.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.20	2.30	2.40
b	0.70	0.80	0.90
b1	9.70	9.80	9.90
b2	0.42	0.46	0.50
c	0.40	0.50	0.60
D	10.28	10.38	10.58
D2		3.30	
E	9.70	9.90	10.10
E1		7.80	
E4		8.80	
E5		9.20	
e		1.20 (BSC)	
H	11.48	11.68	11.88
H1	6.55	6.75	6.85
H2		7.30	
H3		3.20	
H4		3.80	
K1		4.18	
L	1.70	1.90	2.10
L1		0.70	
L2		0.60	
L4	1.00	1.15	1.30

Recommended Soldering Footprint



DIMENSIONS:MILLIMETERS