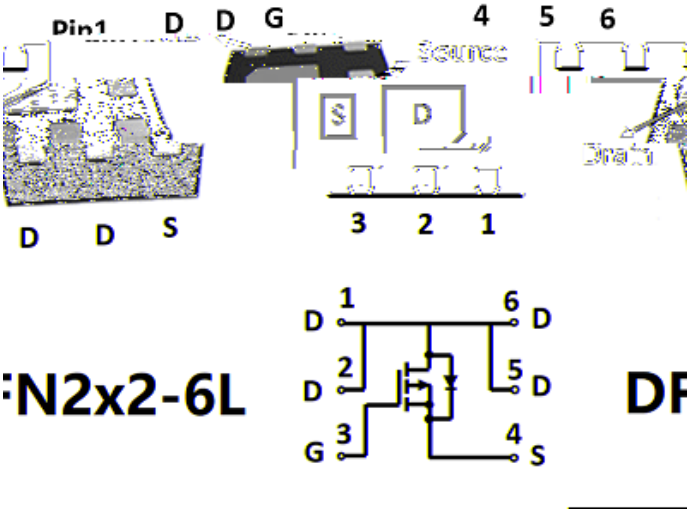
RoHS
COMPLIANT




- $V_{DS}$ -20V
- $I_D$ -7A
- $R_{DS(ON)}$( at $V_{GS}$=-4.5V) 36.5mohm
- $R_{DS(ON)}$( at $V_{GS}$=-2.5V) 46.5mohm
- $R_{DS(ON)}$( at $V_{GS}$=-1.8V) 60.5mohm

- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

- Battery protection
- Power management
- Load switch

■ ($T_A$=25 unless otherwise noted)

| | | | | |
|---|---|---|---|---|
| Drain-source Voltage | | $V_{DS}$ | -20 | V |
| Gate-source Voltage | | $V_{GS}$ | ± 10 | V |
| Drain Current | $T_C$=25 @ Steady State | $I_D$ | -7 | A |
| | $T_C$=70 @ Steady State | | -5.6 | |
| Pulsed Drain Current [A] | | $I_{DM}$ | -28 | A |
| Total Power Dissipation @ $T_C$=25 [C] | | $P_D$ | 2.2 | W |
| Thermal Resistance Junction-to-Ambient @ Steady State [D] | | $R_{\theta JA}$ | 57 | / W |
| Junction and Storage Temperature Range | | $T_J$ ,$T_{STG}$ | -55 +150 | |

■ (Example)

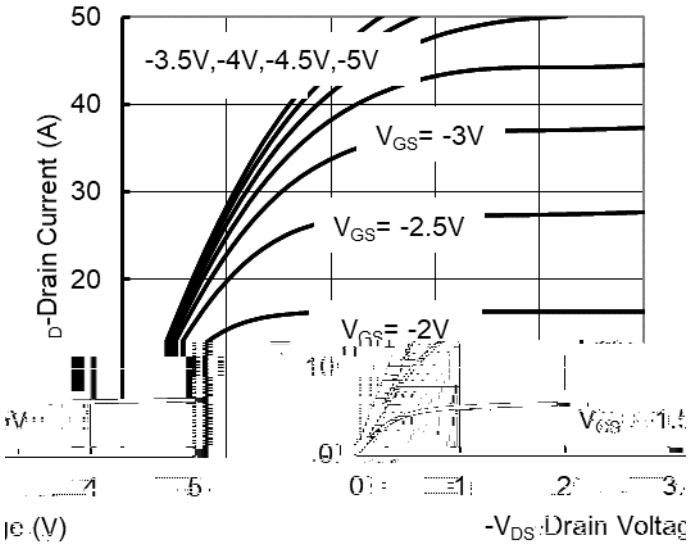
| | | | | | | |
|---|---|---|---|---|---|---|
| YJQ4666B | F1 | ..G66B | 3000 | 30000 | 120000 | 7 “ reel |

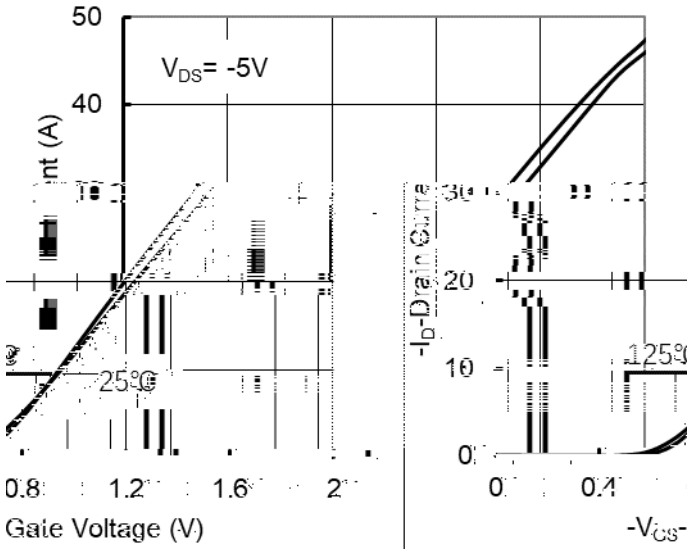
■ ($T_J$=25 unless otherwise noted)

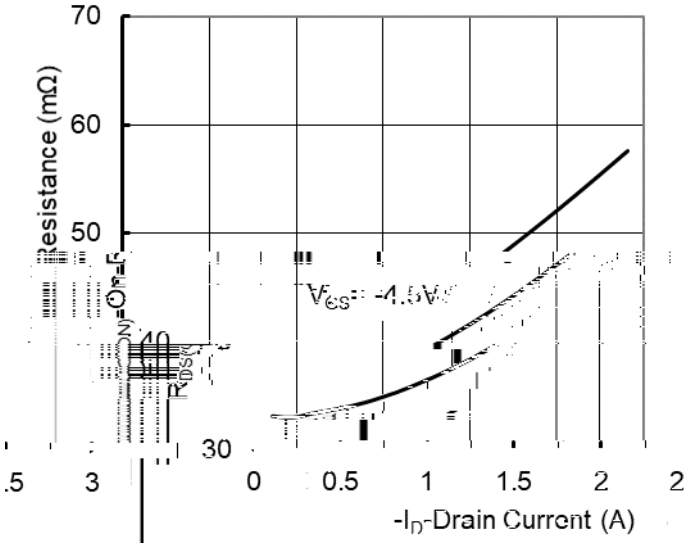
| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$= 0V, $I_D$=-250μA | -20 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-20V,$V_{GS}$=0V | | | -1 | μA |
| Gate-Body Leakage Current | $I_{GSS}$ | $V_{GS}$= ±10V, $V_{DS}$=0V | | | ±100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$= $V_{GS}$, $I_D$=-250μA | -0.4 | -0.62 | -1.0 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}$= -4.5V, $I_D$=-7A | | 24.5 | 36.5 | mΩ |
| | | $V_{GS}$= -2.5V, $I_D$=-5A | | 33.5 | 46.5 | |
| | | $V_{GS}$= -1.8V, $I_D$=-2A | | 45.5 | 60.5 | |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=-7A,$V_{GS}$=0V | | -0.7 | -1.2 | V |
| | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=-10V,$V_{GS}$=0V,f=1MHZ | | 852 | | pF |
| Output Capacitance | $C_{oss}$ | | | 127 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 109 | | |
| | | | | | | |
| Total Gate Charge | $Q_g$ | $V_{GS}$=-4.5V,$V_{DS}$=-9V,$I_D$=-7A | | 40.1 | | nC |
| Gate Source Charge | $Q_{gs}$ | | | 8.4 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 8.6 | | |
| Reverse Recovery Charge | $Q_{rr}$ | $I_F$= -15A, di/dt=100A/us | | 7.8 | | |
| Reverse Recovery Time | $t_{rr}$ | | | 18 | | ns |
| Turn-on Delay Time | $t_{D(on)}$ | $V_{GS}$=-4.5V,$V_{DD}$=-9V, $I_D$=-1A, $R_{GEN}$=2.5Ω | | 8 | | |
| Turn-on Rise Time | $t_r$ | | | 19 | | |
| Turn-off Delay Time | $t_{D(off)}$ | | | 75 | | |
| Turn-off Fall Time | $t_f$ | | | 46 | | |

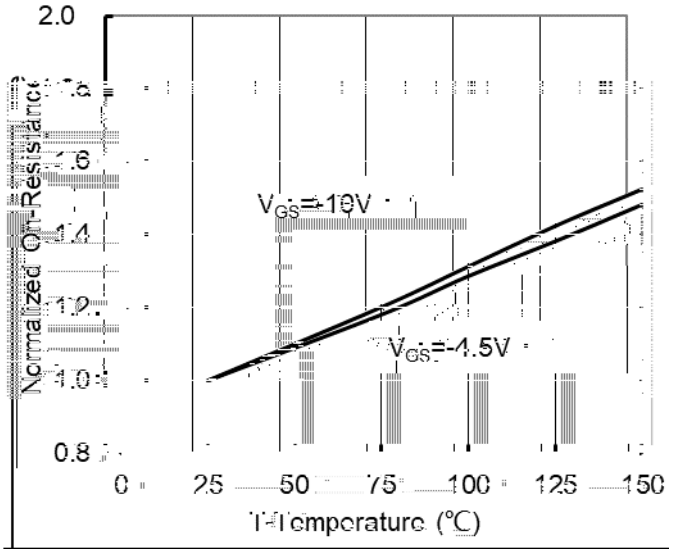
A. Pulse Test: Pulse Width ≤ 300us,Duty cycle ≤ 2%.

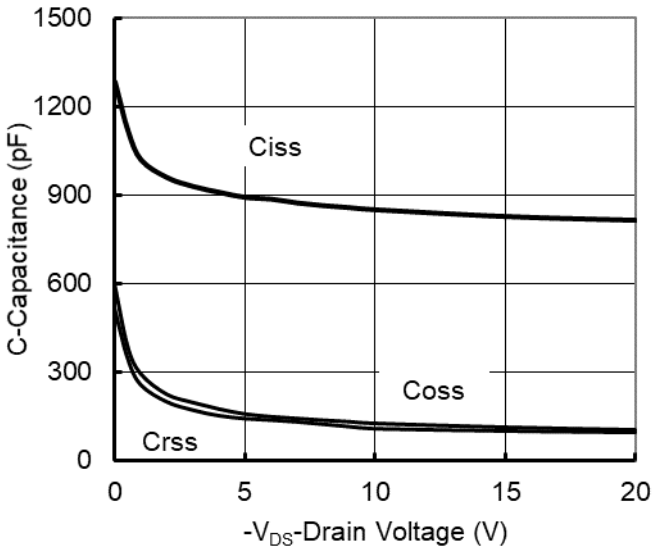
B. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

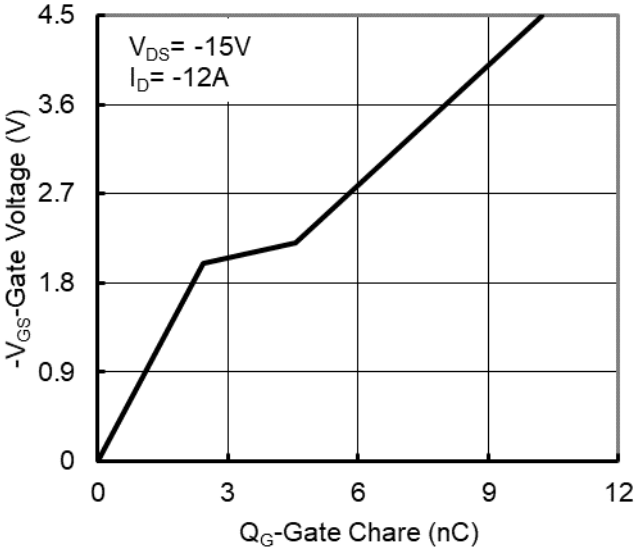

-3.5V,-4V,-4.5V,-5V
$V_{GS}$= -3V
$V_{GS}$= -2.5V
$V_{GS}$= -2V
-$I_D$-Drain Current (A)
-$V_{DS}$-Drain Voltag

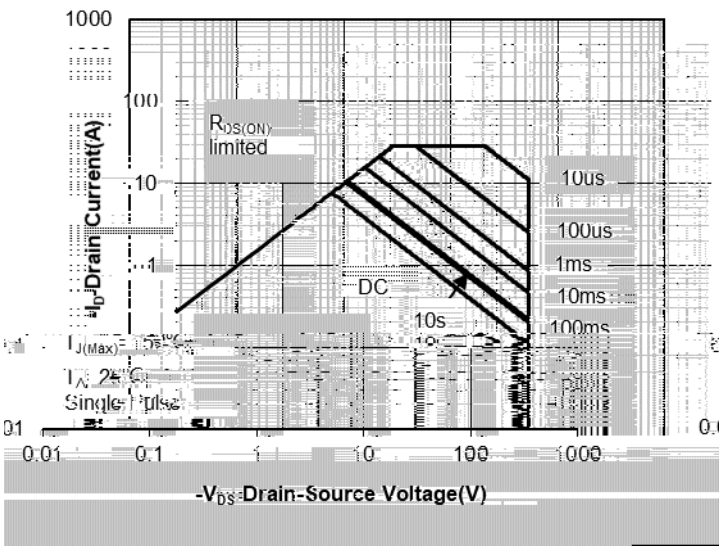

$V_{DS}$= -5V
25℃
125℃
Gate Voltage (V)
-$V_{GS}$-

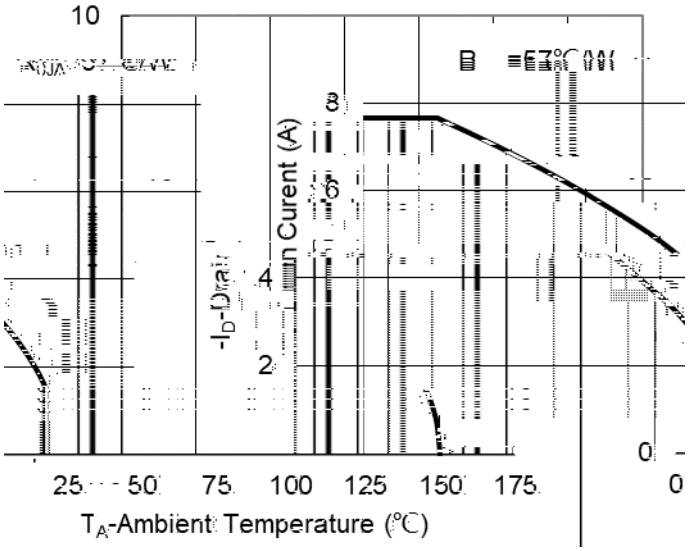

Resistance (mΩ)
$V_{GS}$= -4.5V
-$I_D$-Drain Current (A)

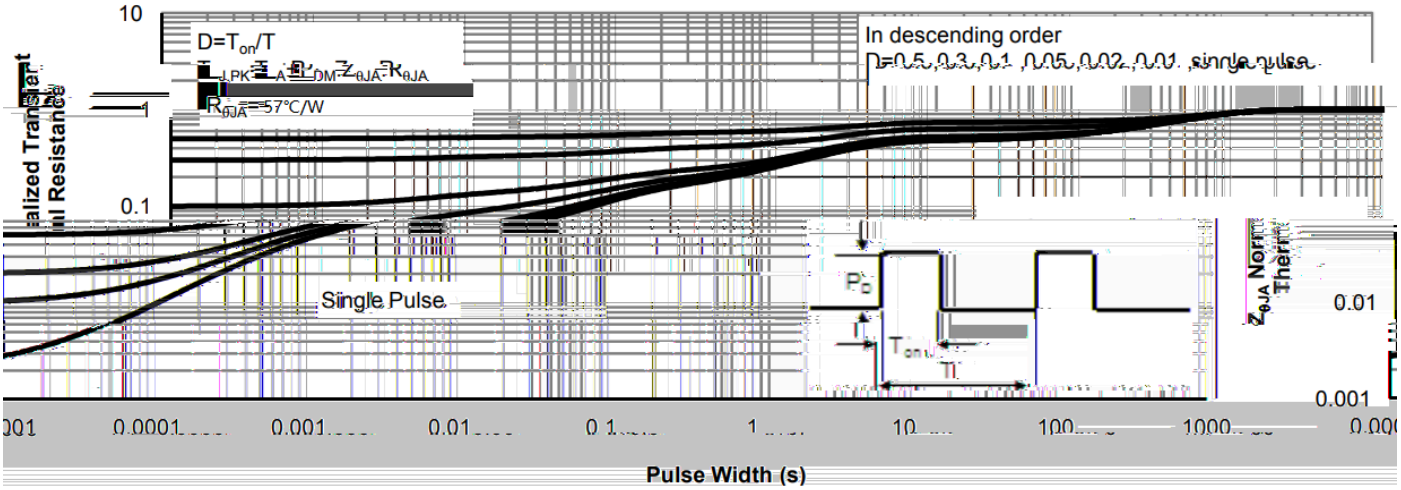

Normalized On-Resistance
$V_{GS}$=-10V
$V_{GS}$=-4.5V
T-Temperature (℃)

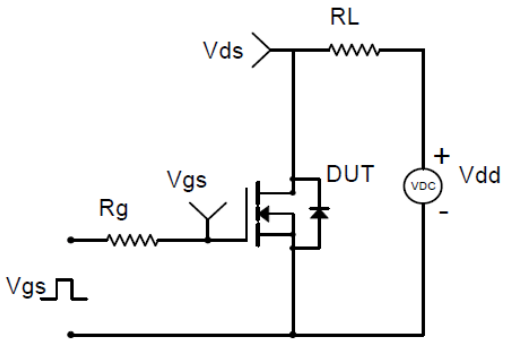

C-Capacitance (pF)
Ciss
Coss
Crss
-$V_{DS}$-Drain Voltage (V)

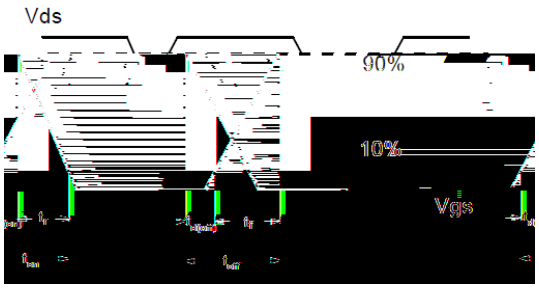

$V_{DS}$= -15V
$I_D$= -12A
-$V_{GS}$-Gate Voltage (V)
$Q_G$-Gate Chare (nC)

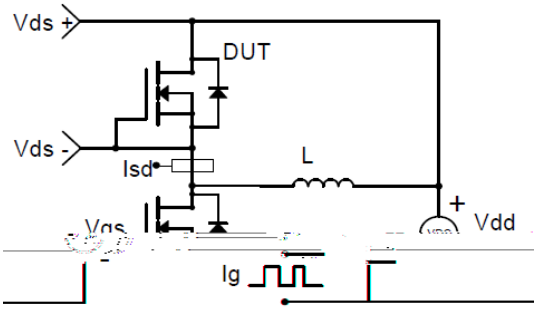

1000
100
10
1
$R_{DS(ON)}$ limited
DC
10us
100us
1ms
10ms
100ms
10s
$T_{J(Max)}$
$T_A$=25°C
Single Pulse
$-I_D$-Drain Current(A)
0.01
0.1
1
10
100
1000
$-V_{DS}$-Drain-Source Voltage(V)

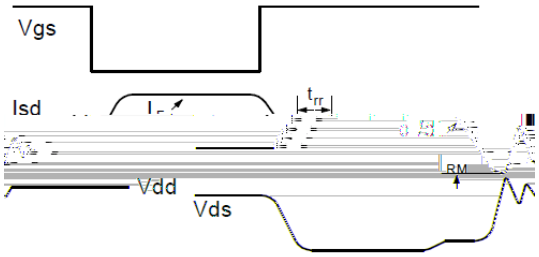

10
8
6
4
2
0
$-I_D$-Drain Curent (A)
25
50
75
100
125
150
175
$T_A$-Ambient Temperature (°C)

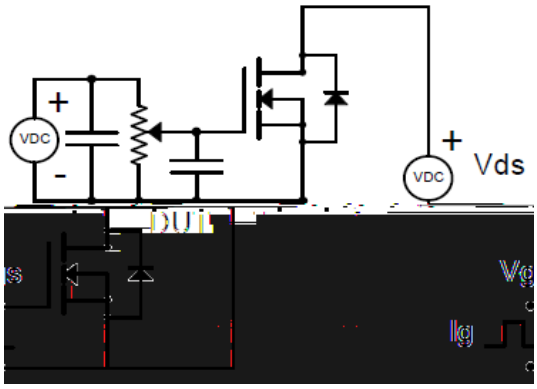

10
1
0.1
D=$T_{on}$/T
$T_{JPK}$=$T_A$+$P_{DM}$·$Z_{\theta JA}$·$R_{\theta JA}$
$R_{\theta JA}$=57°C/W
In descending order
D=0.5,0.3,0.1,0.05,0.02,0.01,single pulse
Single Pulse
$P_D$
T
$T_{on}$
$Z_{\theta JA}$ Normalized Transient Thermal Resistance
0.01
0.001
0.0001
0.001
0.01
0.1
1
10
100
1000
Pulse Width (s)

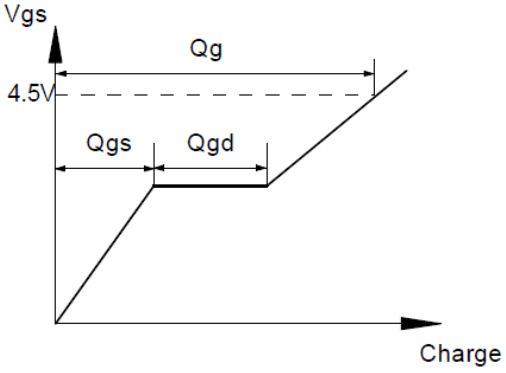

RL
Vds
Vgs
DUT
Vdd
Rg
Vgs

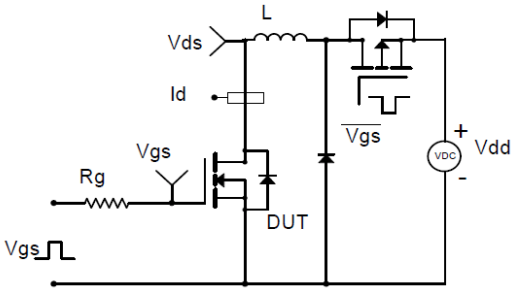

Vds
90%
10%
Vgs

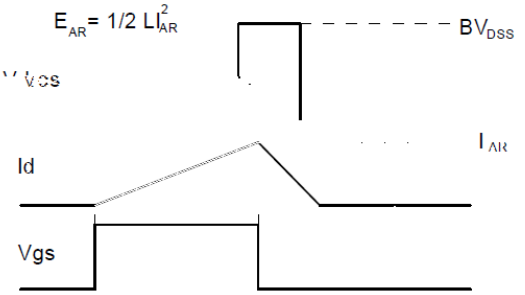

Vds +
DUT
Vds -
Isd
L
Vdd
Ig


Vgs
Isd
Vdd
Vds

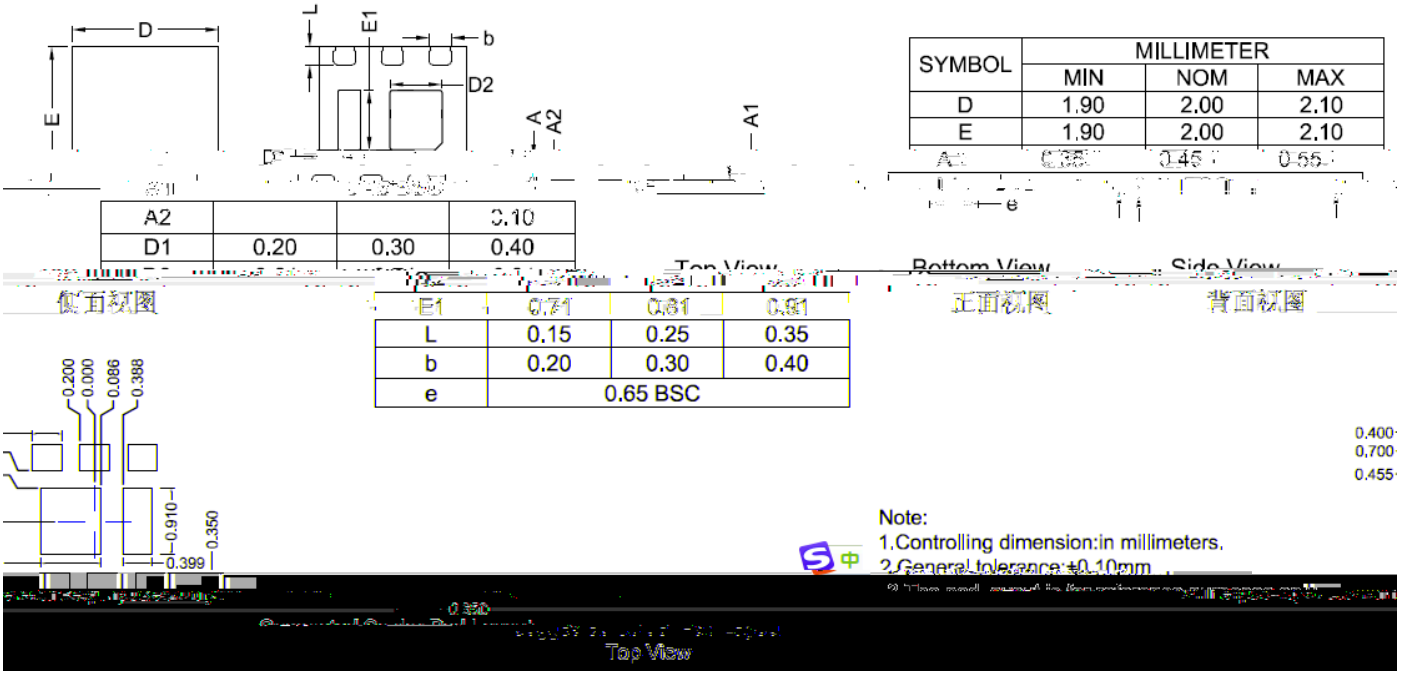

VDC
Vds
DUT
Ig


Vgs
Qg
4.5V
Qgs
Qgd
Charge


L
Vds
Id
Vgs
Rg
DUT
Vgs
Vdd


E_AR = 1/2 LI_AR^2
BV_DSS
Id
Vgs

■




| SYMBOL | MILLIMETER | | |
|---|---|---|---|
| | MIN | NOM | MAX |
| D | 1.90 | 2.00 | 2.10 |
| E | 1.90 | 2.00 | 2.10 |
| A | 0.35 | 0.45 | 0.55 |

| | | | |
|---|---|---|---|
| A2 | | | 0.10 |
| D1 | 0.20 | 0.30 | 0.40 |
| E1 | 0.71 | 0.81 | 0.91 |
| L | 0.15 | 0.25 | 0.35 |
| b | 0.20 | 0.30 | 0.40 |
| e | 0.65 BSC | | |

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.