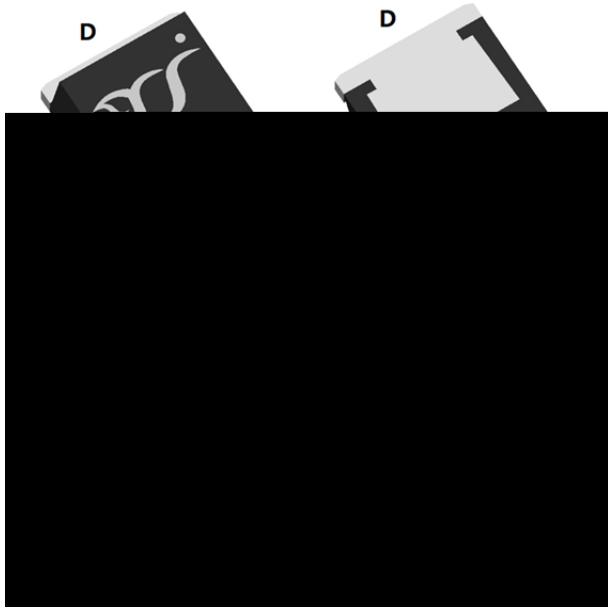


N-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	40V
I_D	155A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	<2.5mohm
100% EAS Tested	
100% ∇V_{DS} Tested	

General Description

Split gate trench MOSFET technology
 Excellent package for heat dissipation
 High density cell design for low $R_{DS(ON)}$
 Moisture Sensitivity Level 1
 2 : RRa B9 & C-0 Flammability Rating
 5 alogen Free

Applications

Power switching application
 Uninterruptible power supply
 DC-DC convertor

Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	40	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25$	I_D	28	A
	$T_A=100$		20	
	$T_C=25$		155	
	$T_C=100$		109	
Pulsed Drain Current ^A		I_{DM}	465	A
Avalanche energy ^B		EAS	676	mJ
Total Power Dissipation ^C	$T_A=25$	P_D	5	W
	$T_A=100$		2.5	
	$T_C=25$		150	
	$T_C=100$		75	
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+175	

Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^D	Steady-State	$R_{\theta J-A}$	25	30	/W
Thermal Resistance Junction-to-Case	Steady-State	$R_{\theta J-C}$	0.8	1	

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJB155G04H	F2	YJB155G04H	800	/	8000	13 reel



YJB155G04H

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D$	40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V, V_{GS}=0V$	-	-	1	.
		$V_{DS}=40V, V_{GS}=0V, T_J=150$	-	-	100	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D$	2	3	4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	-	1.9	2.5	Z
Diode Forward Voltage	V_{SD}	$I_S=20A, V_{GS}=0V$	-	-	1.2	V
Gate resistance	R_G	$f=1\text{MHz}$	-	1.0	-	
Maximum Body-Diode Continuous Current	I_S		-	-	155	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=20V, V_{GS}=0V, f=1\text{MHz}$	-	4380	-	pF
Output Capacitance	C_{oss}		-	1490	-	
Reverse Transfer Capacitance	C_{rss}		-	30	-	
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=20V, I_D=55A$	-	56.56	-	nC
Gate-Source Charge	Q_{gs}		-	27	-	
Gate-Drain Charge	Q_{gd}		-	5.66	-	
Reverse Recovery Charge	Q_{rr}	$I_F=55A, di/dt=100A/\mu s$	-	52.58	-	nC
Reverse Recovery Time	t_{rr}		-	58.2	-	ns
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=20V, I_D=55A$ $R_{GEN}=3$	-	21.8	-	ns
Turn-on Rise Time	t_r		-	8.6	-	
Turn-off Delay Time	$t_{D(off)}$		-	43.8	-	
Turn-off fall Time	t_f		-	51.7	-	

A. Repetitive rating; pulse width limited by max. junction temperature.

B. $T_J=25^\circ\text{C}$, $V_G=10V$, $R_G=9\text{mH}$, $I_{AS}=26A$.

C. P_d is based on max. junction temperature, using junction-case thermal resistance.

D. The value of $R_{\theta j-c}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. The maximum allowed junction temperature of 175°C . The value in any given application depends on the user's specific board design.



YJB155G04H

Typical Electrical and Thermal Characteristics Diagrams

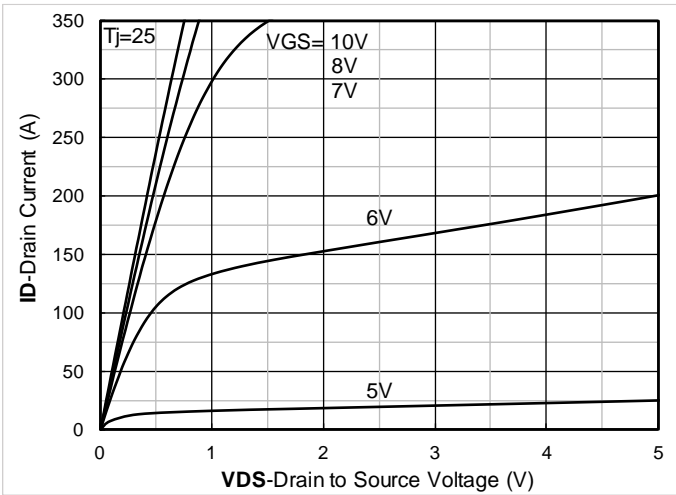


Figure1. Output Characteristics

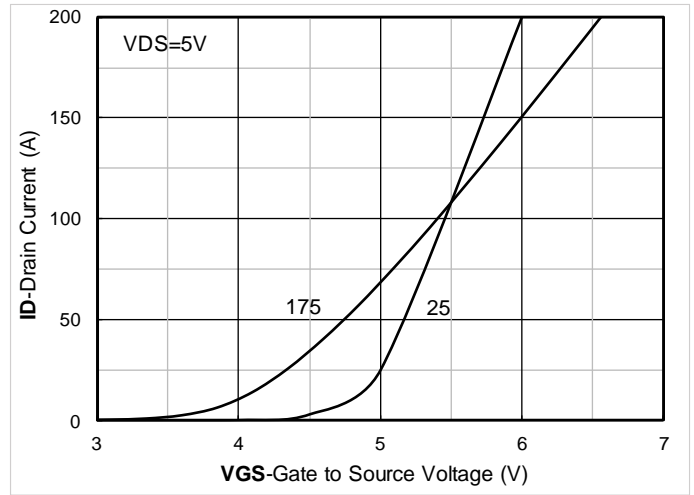


Figure2. Transfer Characteristics

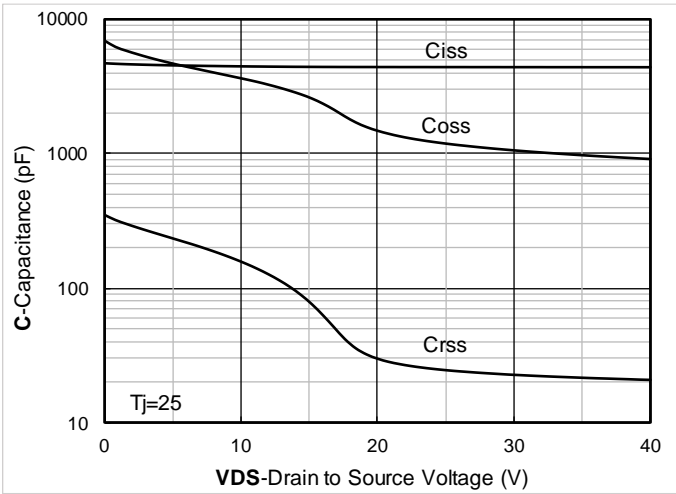


Figure3. Capacitance Characteristics

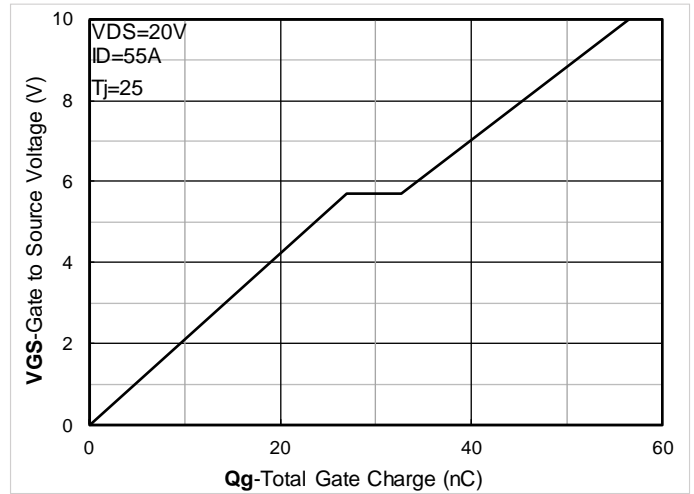


Figure4. Gate Charge

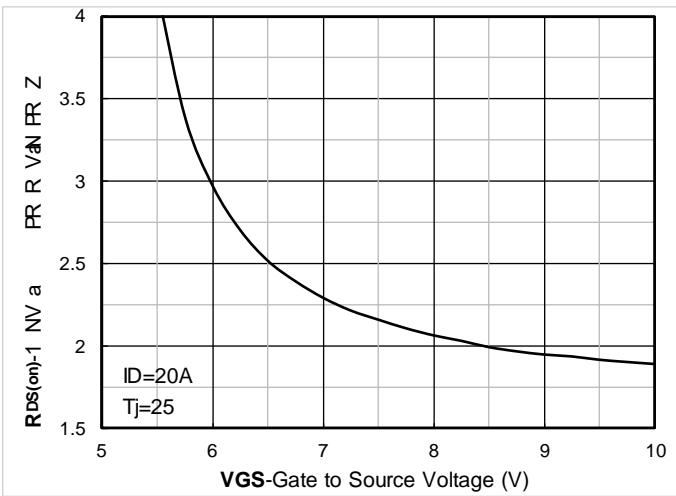


Figure5. On-Resistance vs Gate to Source Voltage

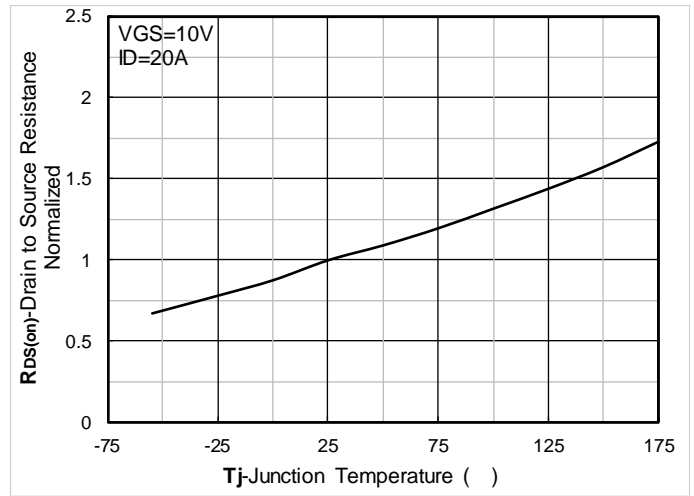


Figure6. Normalized On-Resistance



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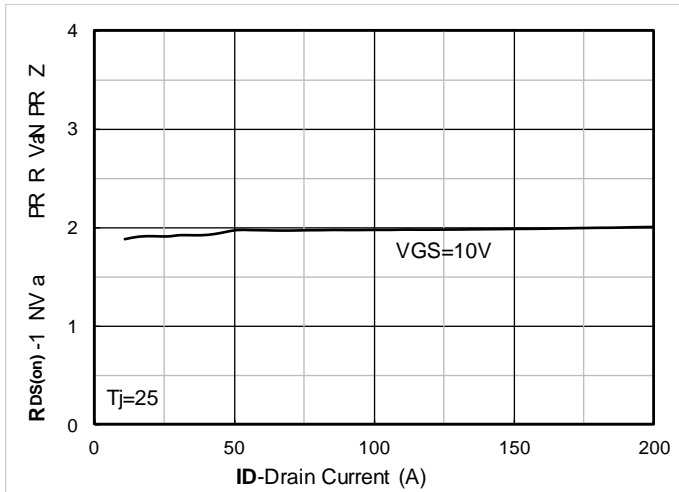


Figure7. RDS(on) VS Drain Current

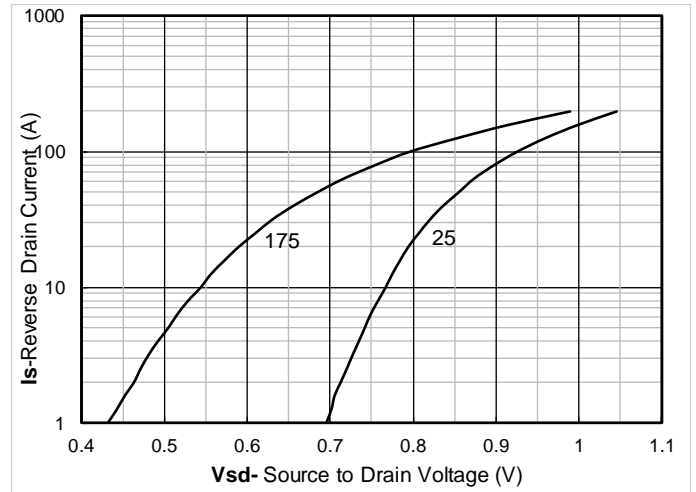


Figure8. Forward characteristics of reverse diode

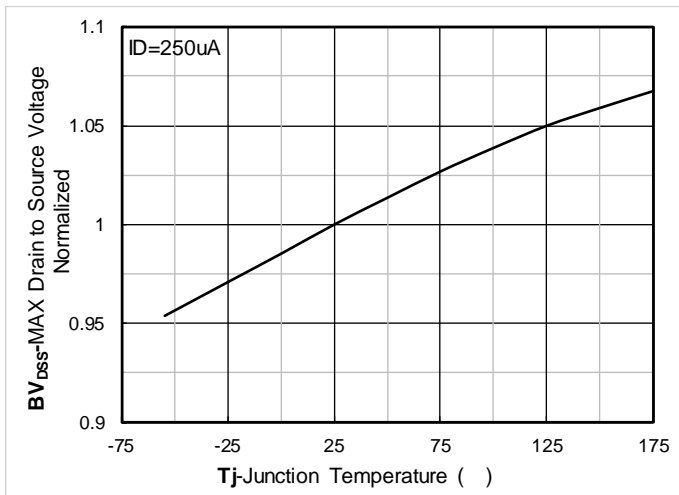


Figure9. Normalized breakdown voltage

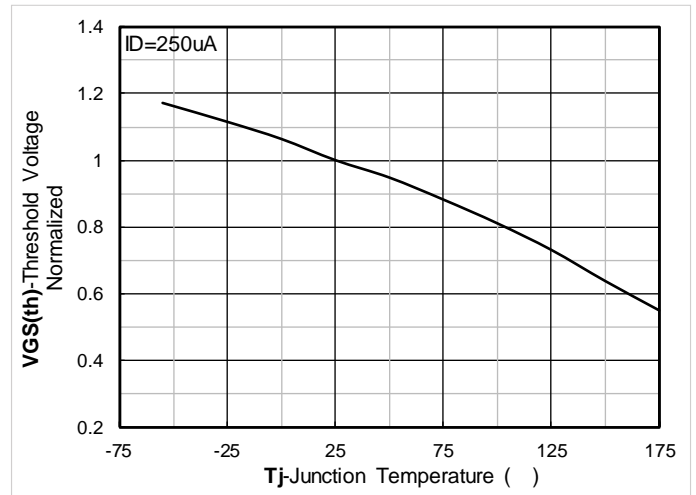


Figure10. Normalized Threshold voltage

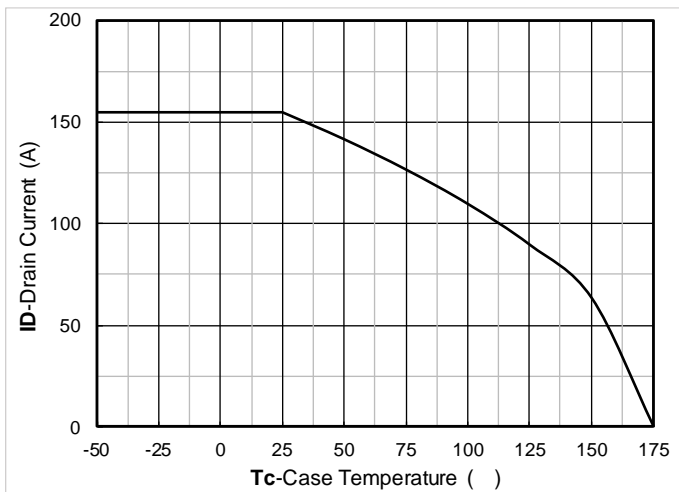


Figure11. Current dissipation

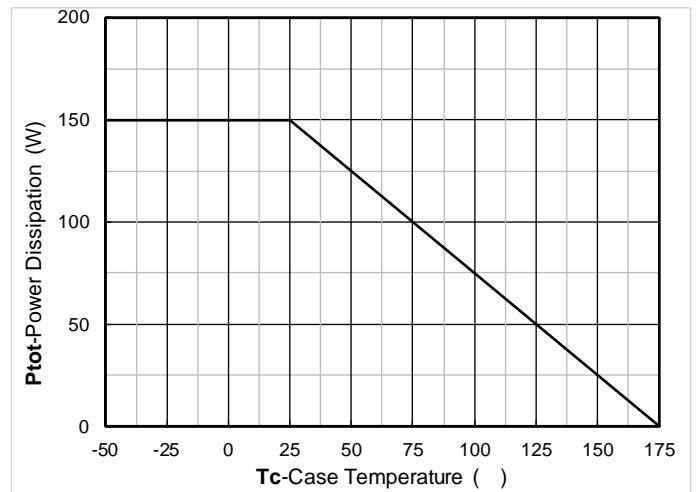


Figure12. Power dissipation



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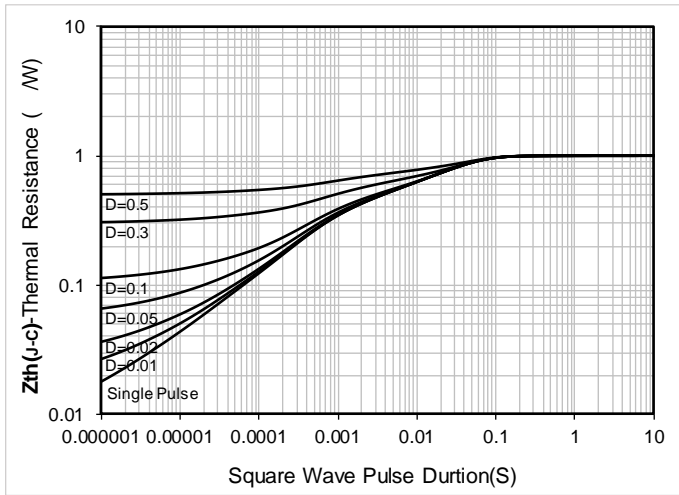


Figure13. Maximum Transient Thermal Impedance

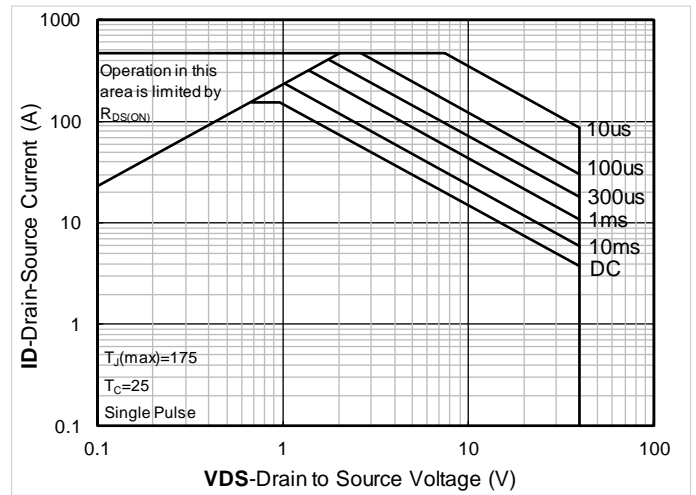
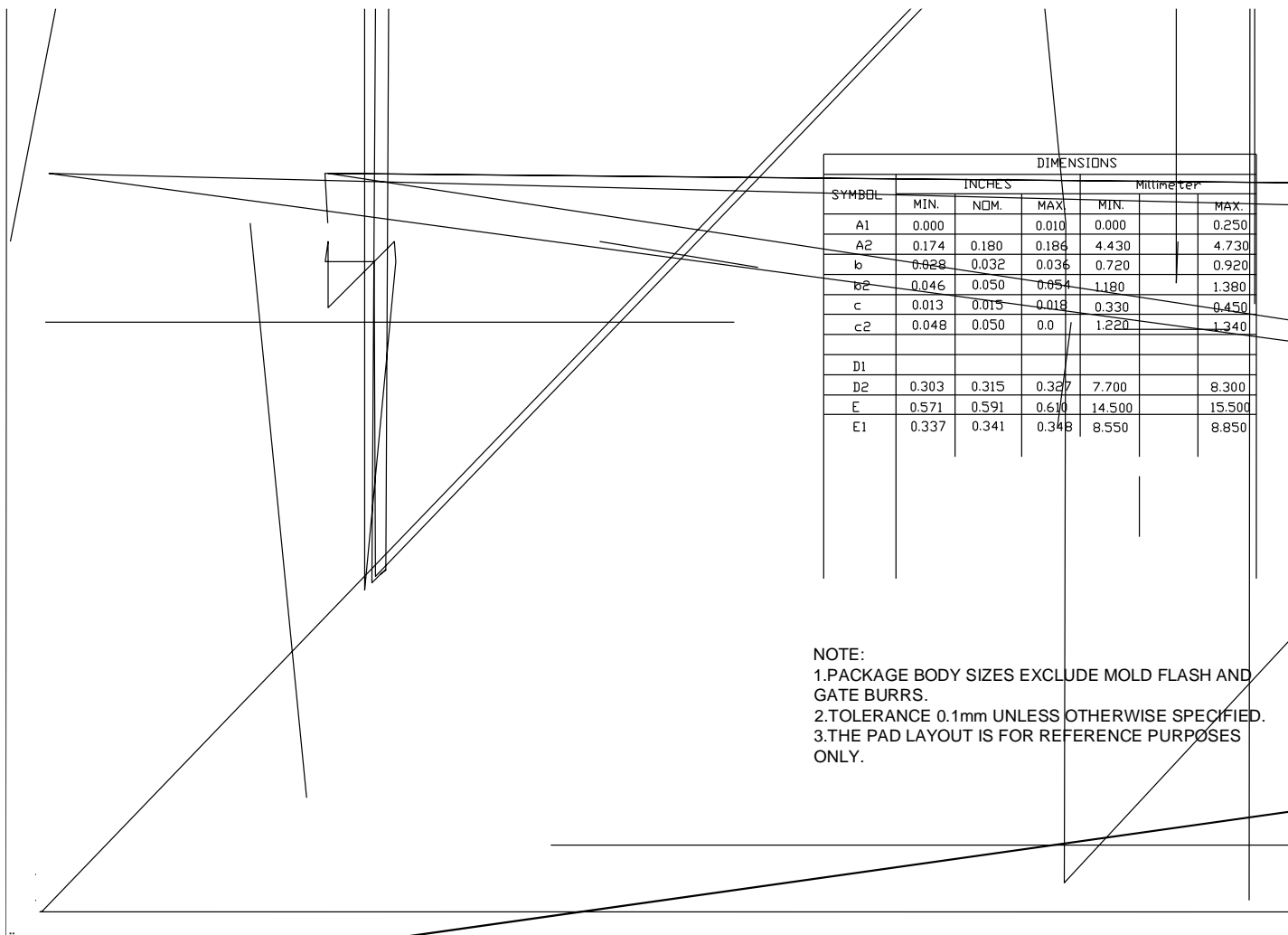


Figure14. Safe Operation Area



YJB155G04H

TO-263-HY Package information



NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

SUGGESTED SOLDER PAD LAYOUT



YJB155G04H

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