

■ PRODUCT CHARACTERISTICS

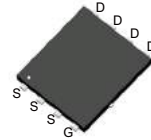
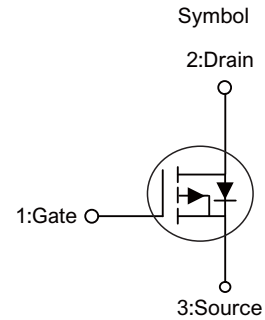
V <sub>DSS</sub>	-40V
R <sub>DS(ON)Typ</sub> (@V <sub>GS</sub> = -4.5V)	9.2mΩ
R <sub>DS(ON)Typ</sub> (@V <sub>GS</sub> = -10V)	7.2mΩ
I <sub>D</sub>	-70A

■ APPLICATIONS

Power switch  
Load switch in high current applications  
DC/DC converters

■ FEATURES

- \*High density cell design for ultra low R<sub>ds(on)</sub>
- \*Fully characterized avalanche voltage and current
- \*Good stability and uniformity with high E<sub>as</sub>
- \*Excellent package for good heat dissipation



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT4710G	PDFN5X6	5000 pieces /Reel

■ ABSOLUTE MAXIMUM RATINGS(T<sub>C</sub> = 25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit	
Drain-to-source voltage	V <sub>DSS</sub>	-40	V	
Gate-to-source voltage	V <sub>GSS</sub>	±20	V	
Continuous drain	I <sub>D</sub>	T <sub>C</sub> = 25°C	-70	A
		T <sub>C</sub> = 100°C	-49.5	A
Pulsed drain current	I <sub>DM</sub>	-200	A	
Avalanche energy	E <sub>AS</sub>	1012	mJ	
Power dissipation	P <sub>D</sub>	130	W	
Junction & storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	~55 to +150	°C	

■ THERMAL PERFORMANCE

Parameter	Symbol	Ratings	Unit
Thermal resistance, Junction-to-case	R <sub>θJC</sub>	0.96	°C/W

**■ ELECTRICAL CHARACTERISTICS**( $T_C = 25^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
<b>STATIC PARAMETERS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-40	-	-	V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=-40V, V_{GS}=0V$ $T_J=55^\circ\text{C}$	-	-	1	$\mu A$
			-	-	5	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.2	-	-2.5	V
Static drain-source on-resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-20A$	-	7.2	10	m $\Omega$
		$V_{GS}=-4.5V, I_D=-15A$	-	9.2	13	m $\Omega$
Forward transconductance	$g_{FS}$	$V_{DS}=-10V, I_D=-20A$	-	-	50	S
Diode forward voltage	$V_{SD}$	$I_S=-1A, V_{GS}=0V$	-	-0.75	-1	V
Diode continuous current	$I_S$	$T_C=25^\circ\text{C}$	-	-	-70	A
<b>DYNAMIC PARAMETERS</b>						
Input capacitance	$C_{ISS}$	$V_{GS}=0V, V_{DS}=-20V, f=1\text{MHz}$	-	5380	-	pF
Output capacitance	$C_{OSS}$		-	570	-	pF
Reverse transfer capacitance	$C_{rSS}$		-	500	-	pF
<b>SWITCHING PARAMETERS</b>						
Total charge	$Q_g$	$V_{GS}=-10V$ $V_{DS}=-20V, I_D=-20A$	-	106	-	nC
Gate source charge	$Q_{gs}$		-	22	-	nC
Gate drain charge	$Q_{gd}$		-	27	-	nC
Turn-on delay time	$t_{D(on)}$	$V_{GS}=-10V, V_{DD}=-20V$ $R_L=2\Omega, R_{GEN}=1\Omega$	-	15	-	nS
Turn-on rise time	$t_r$		-	12	-	nS
Turn-off delay time	$t_{D(off)}$		-	70	-	nS
Turn-off fall time	$t_f$		-	18	-	nS
Body-diode reverse recovery time	$t_{rr}$	$I_F=70A, dI_F/dt=100A/\mu s$	-	53	-	nS
Body-diode reverse recovery charge	$Q_{rr}$	$I_F=70A, dI_F/dt=100A/\mu s$	-	50	-	nC

■ TYPICAL CHARACTERISTICS

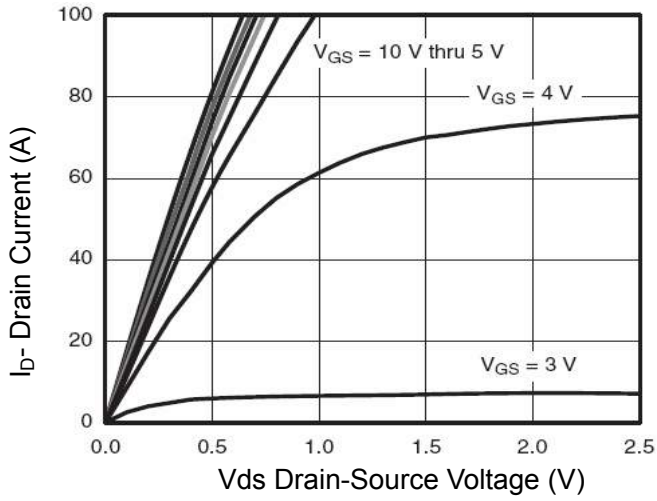


Figure 1 Output Characteristics

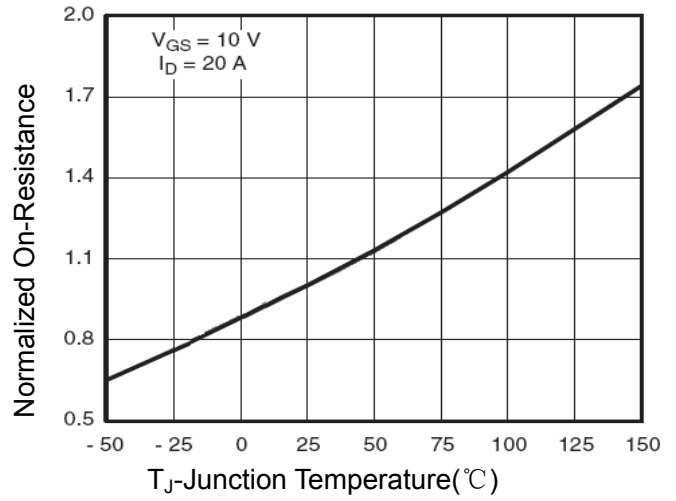


Figure 2 Rdson-Junction Temperature

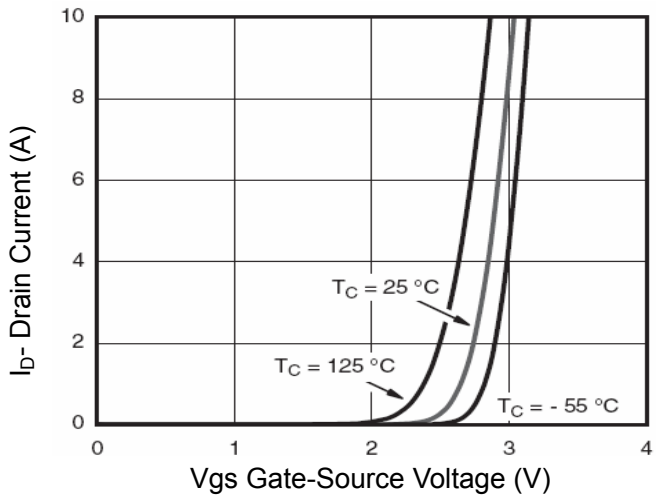


Figure 3 Transfer Characteristics

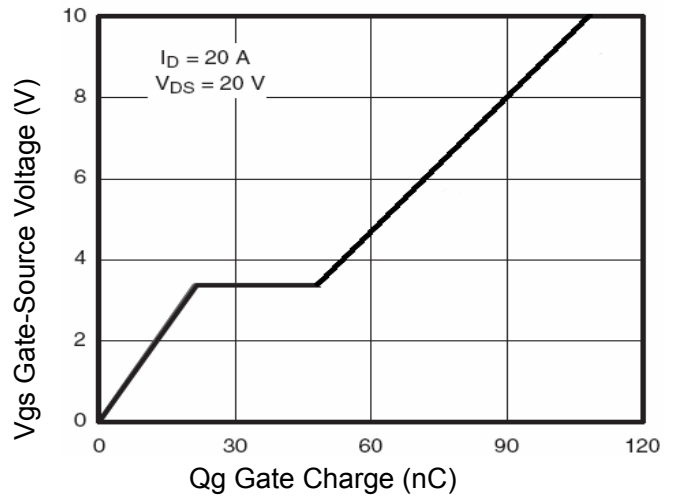


Figure 4 Gate Charge

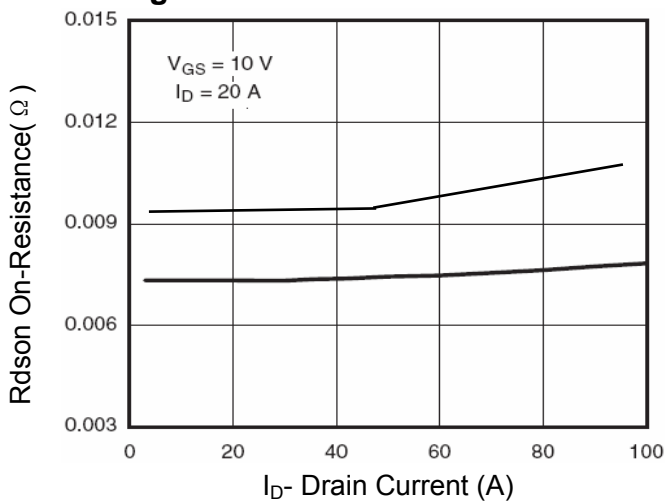


Figure 5 Rdson- Drain Current

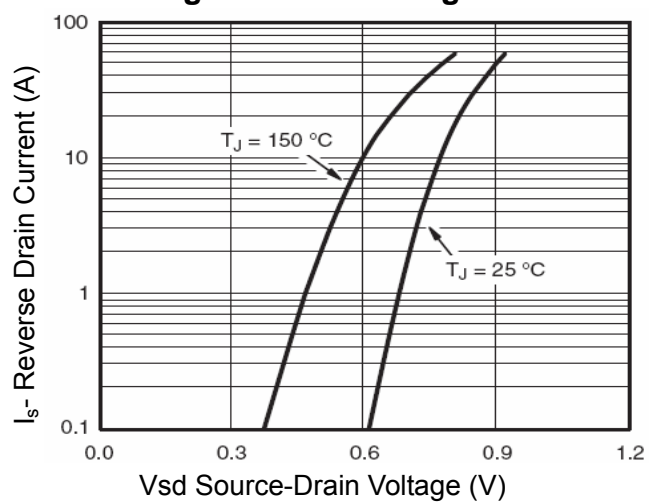


Figure 6 Source- Drain Diode Forward

■ TYPICAL CHARACTERISTICS(Cont.)

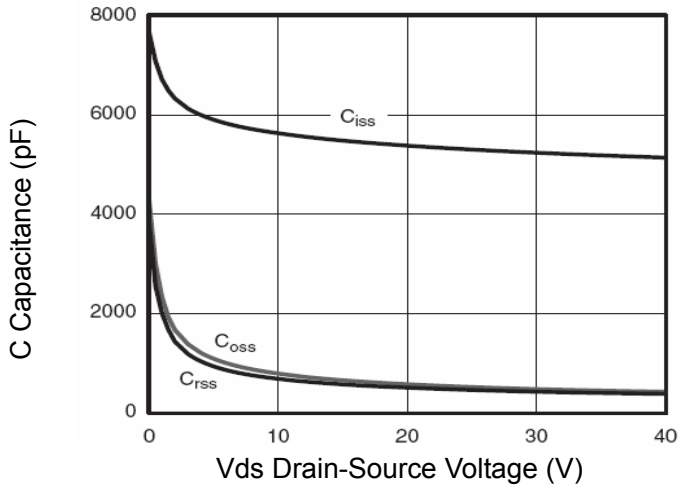


Figure 7 Capacitance vs Vds

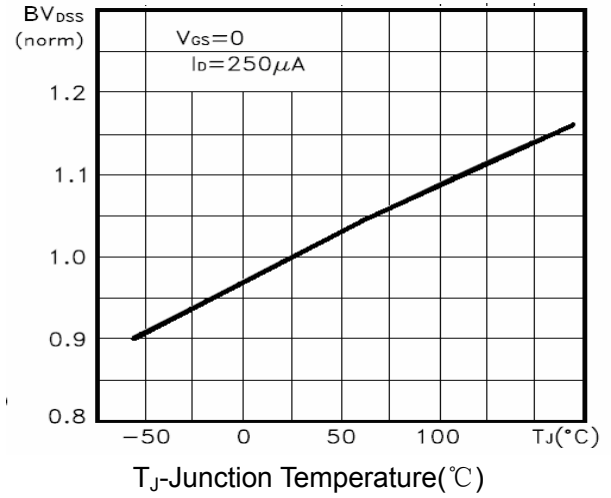


Figure 8  $BV_{DSS}$  vs Junction Temperature

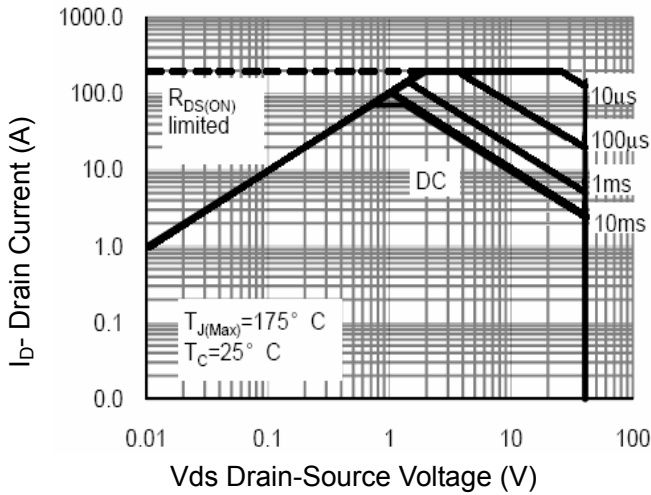


Figure 9 Safe Operation Area

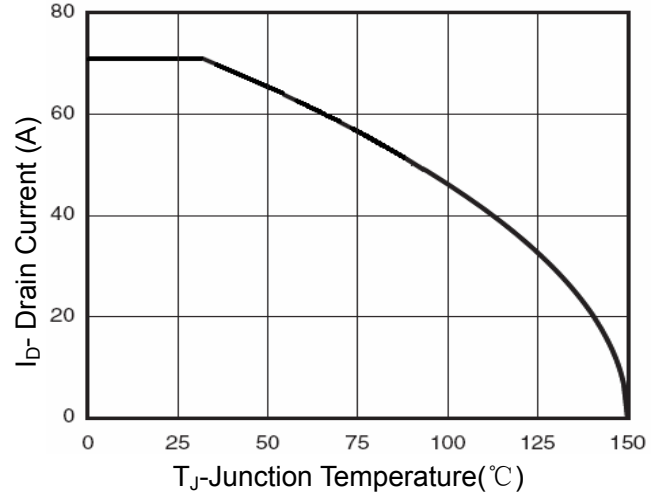


Figure 10  $I_D$  Current Derating vs Junction Temperature

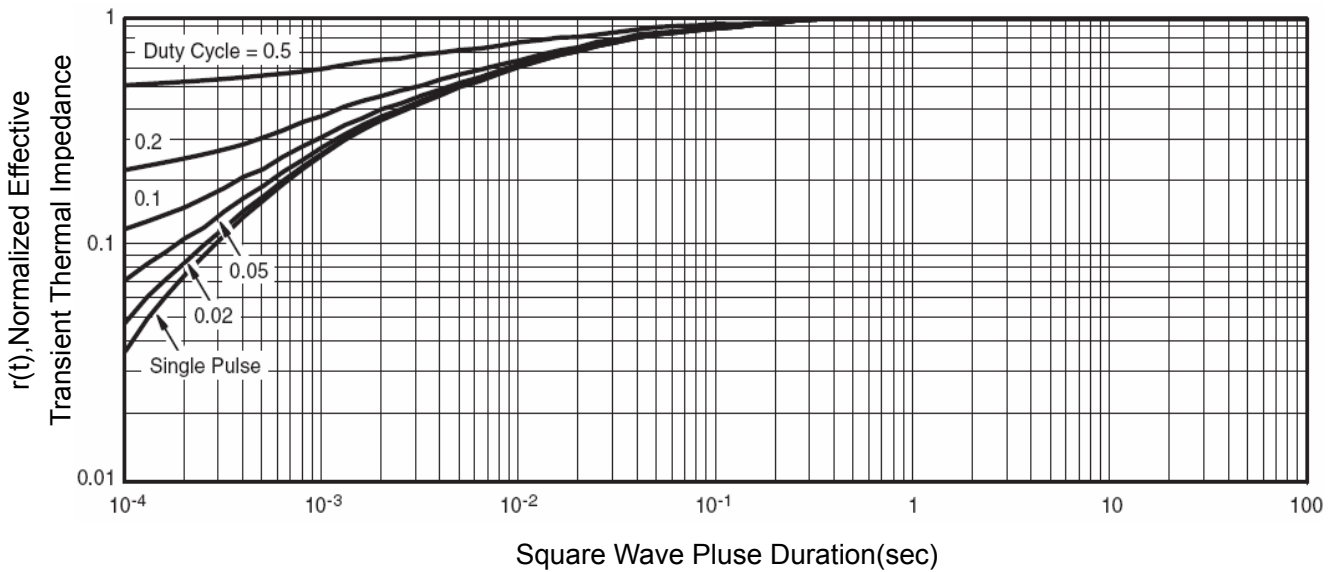
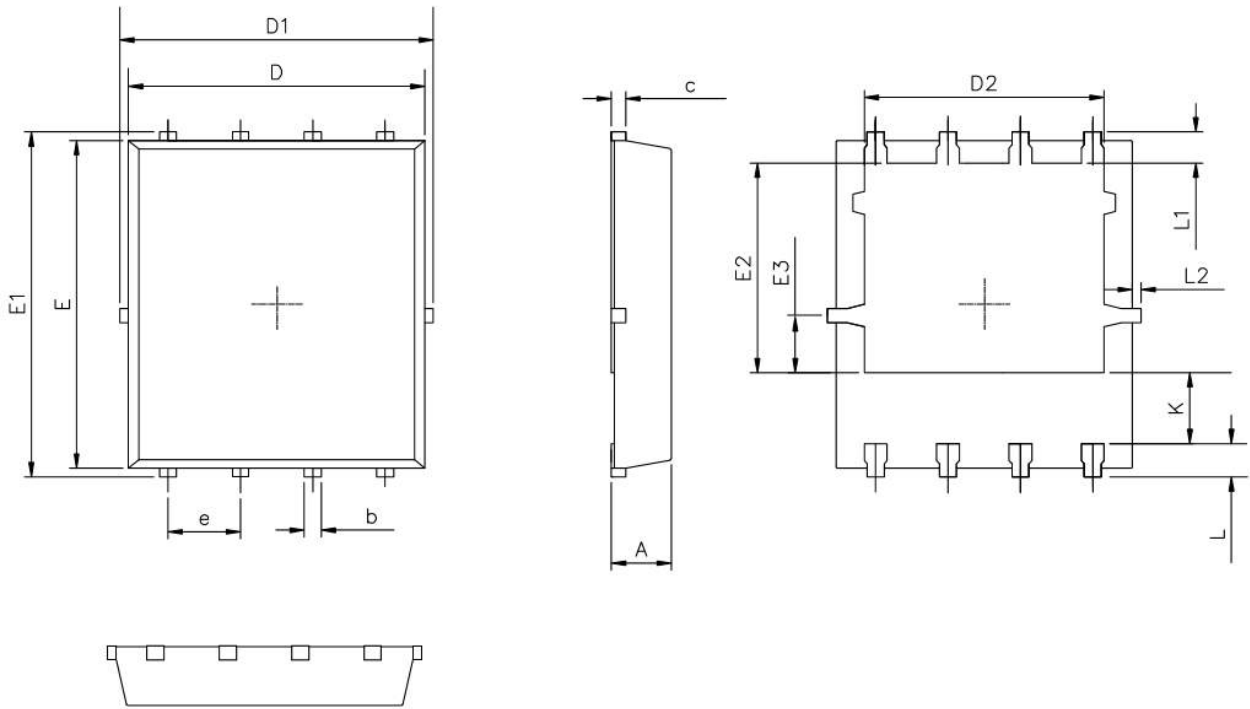
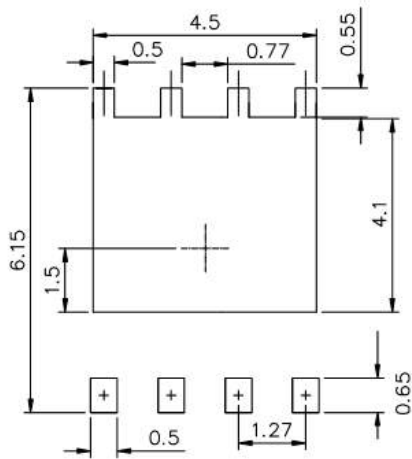


Figure 11 Normalized Maximum Transient Thermal Impedance

■ PDFN5X6-8L Package Mechanical Data



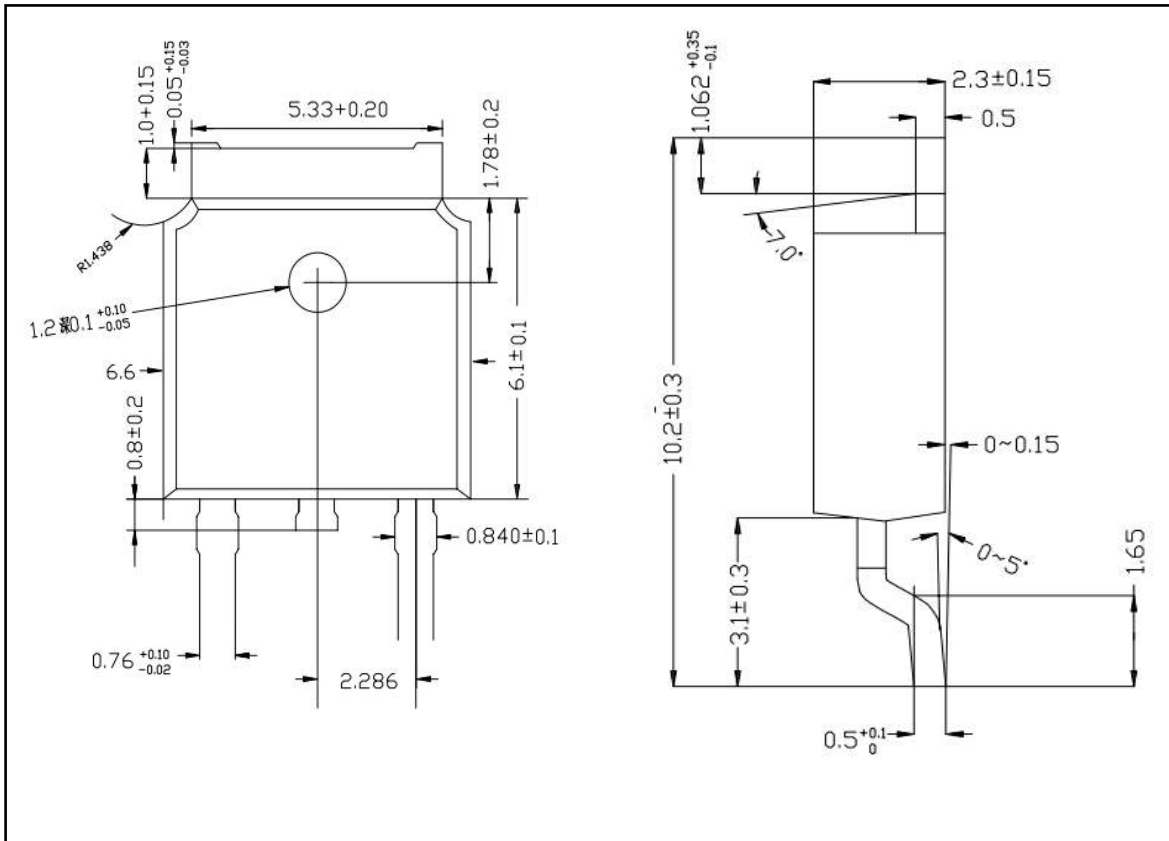
RECOMMENDED LAND PATTERN



UNIT:mm

	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.35	0.50
c	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
e		1.27	
L	0.40	0.55	0.70
L1		0.65	
L2	0.00		0.15
K	1.00	1.30	1.50

■ TO-252 PACKAGE OUTLINE DIMENSIONS



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