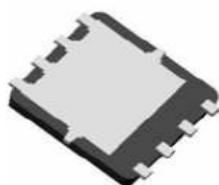
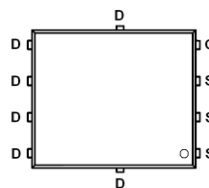
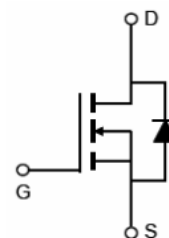


Main Product Characteristics:

V_{DSS}	60V
$R_{DS(on)}$	6.9m Ω (typ.)
I_D	80A


PQFN 5x6

Marking and pin Assignment

Schematic diagram
Features and Benefits:

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

Absolute max Rating:

Symbol	Parameter	Max.	Units
I_D @ TC = 25°C	Continuous Drain Current, V_{GS} @ 10V ①	80	A
I_{DM}	Pulsed Drain Current ②	180	
P_D @TC = 25°C	Power Dissipation ③	110	W
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @ L=0.5mH	390	mJ
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

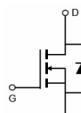
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case ③	—	1.36	$^{\circ}\text{C}/\text{W}$

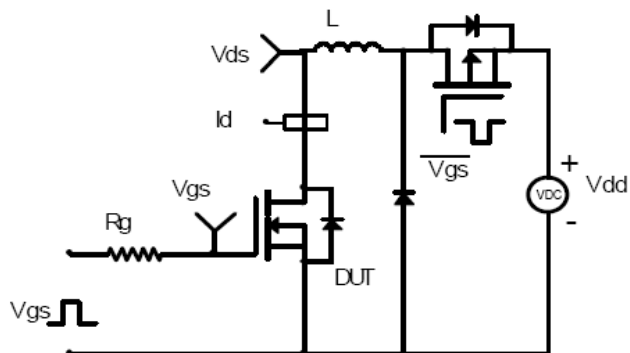
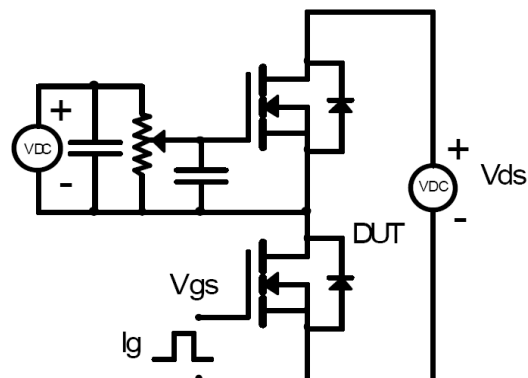
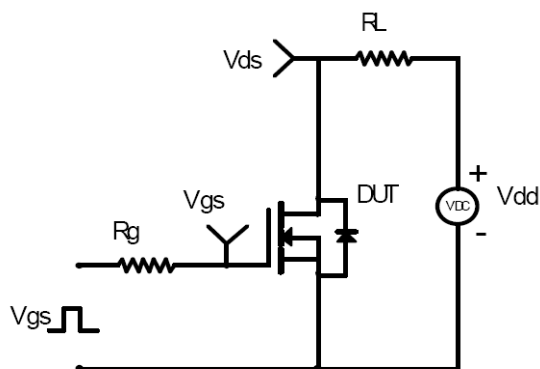
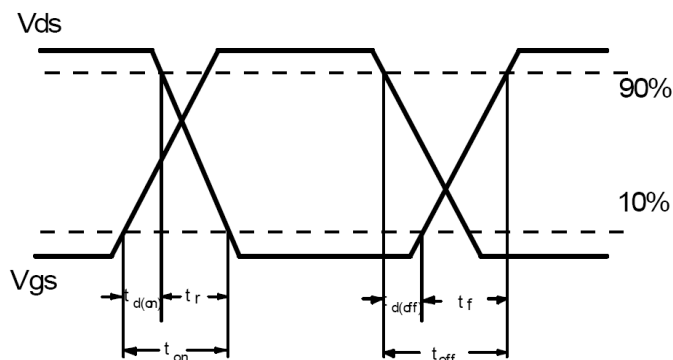
Electrical Characterizes @ $T_A=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	60	—	—	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	6.9	8.5	$\text{m}\Omega$	$V_{GS}=10\text{V}, I_D=20\text{A}$
$V_{GS(th)}$	Gate threshold voltage	2	2.8	4	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	$V_{DS} = 60\text{V}, V_{GS} = 0\text{V}$
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS} = 20\text{V}$
		—	—	-100		$V_{GS} = -20\text{V}$
Q_g	Total gate charge	—	95	—	nC	$I_D = 10\text{A},$ $V_{DS}=75\text{V},$ $V_{GS} = 10\text{V}$
Q_{gs}	Gate-to-Source charge	—	10	—		
Q_{gd}	Gate-to-Drain("Miller") charge	—	20	—		
$t_{d(on)}$	Turn-on delay time	—	17	—	ns	$V_{GS}=10\text{V}, V_{DS}=30\text{V},$ $R_{GEN}=10\Omega$ $I_D = 15.6\text{A}$
t_r	Rise time	—	55	—		
$t_{d(off)}$	Turn-Off delay time	—	88	—		
t_f	Fall time	—	66	—		
C_{iss}	Input capacitance	—	3680	—	pF	$V_{GS} = 0\text{V}$
C_{oss}	Output capacitance	—	270	—		$V_{DS} = 25\text{V}$
C_{rss}	Reverse transfer capacitance	—	206	—		$f = 1\text{MHz}$

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	80	A	MOSFET symbol showing the integral reverse p-n junction diode. 
V_{SD}	Diode Forward Voltage	—	—	1.2	V	$I_S=20\text{A}, V_{GS}=0\text{V}$
t_{rr}	Reverse Recovery Time	—	32	—	ns	$I_S=20\text{A}, di/dt=100\text{A}/\mu\text{s}$
Q_{rr}	Reverse Recovery Charge	—	45	—	nC	

Test circuits and Waveforms

EAS Test Circuit:

Gate charge test circuit:

Switching Time Test Circuit:

Switching Waveforms:


Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

Typical electrical and thermal characteristics

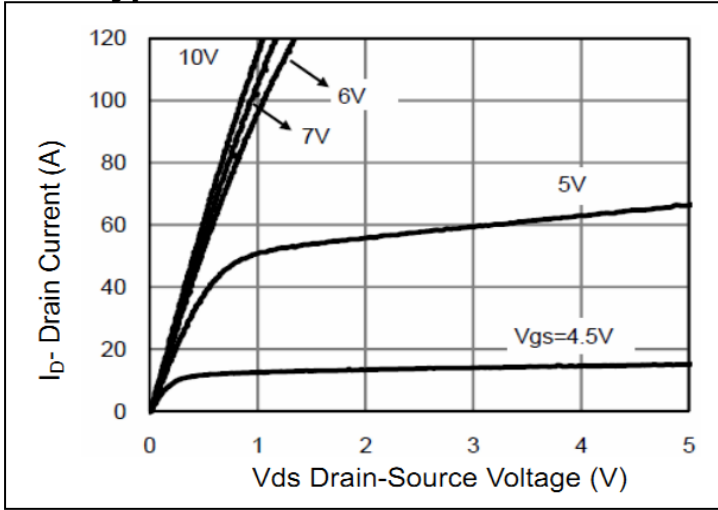


Figure 1: Typical Output Characteristics

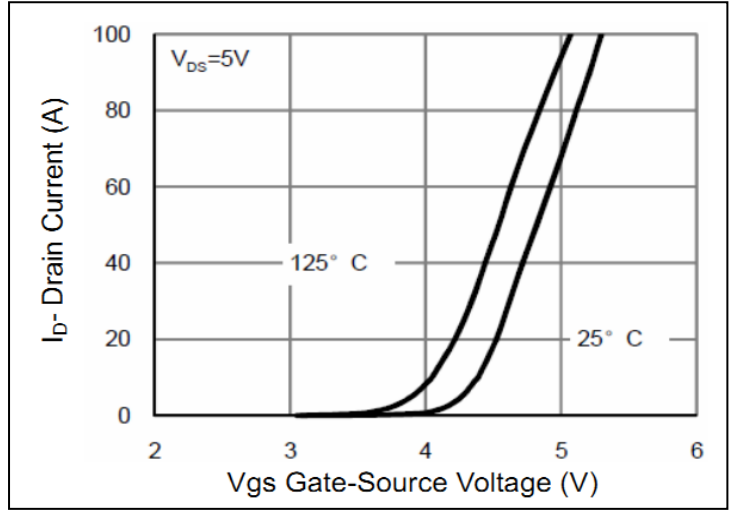


Figure 2: Transfer Characteristics

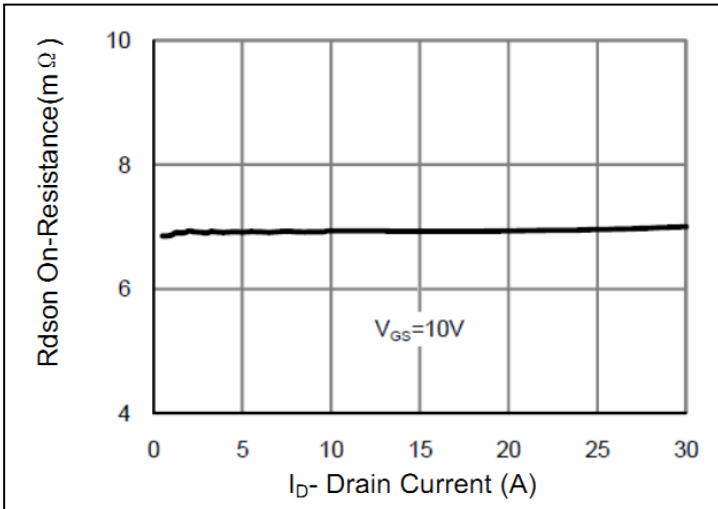


Figure 3: Rdson-Drain Current

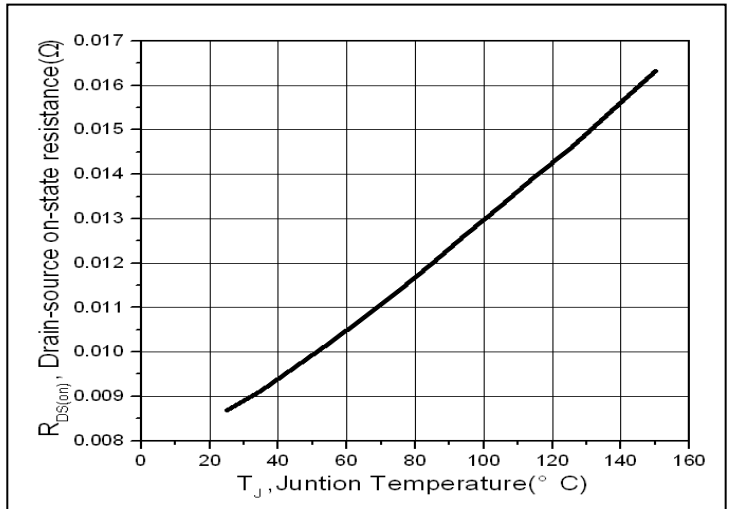


Figure 4: Rdson-Junction Temperature

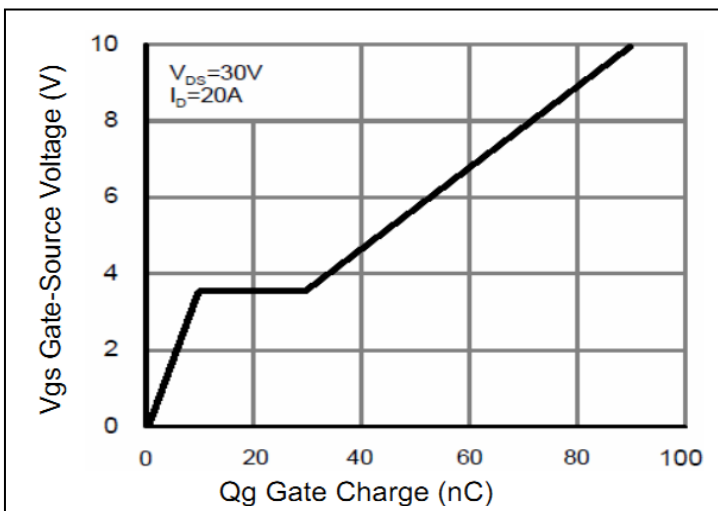


Figure 5: Gate Charge

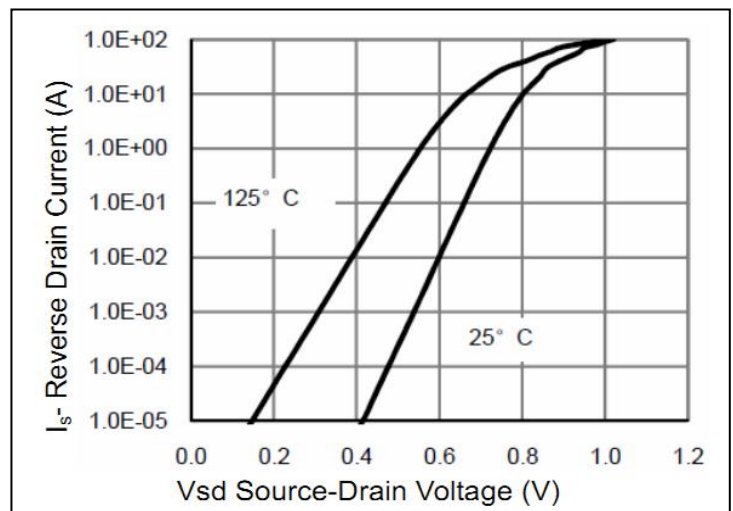


Figure 6: Source-Drain Diode Forward

Typical electrical and thermal characteristics

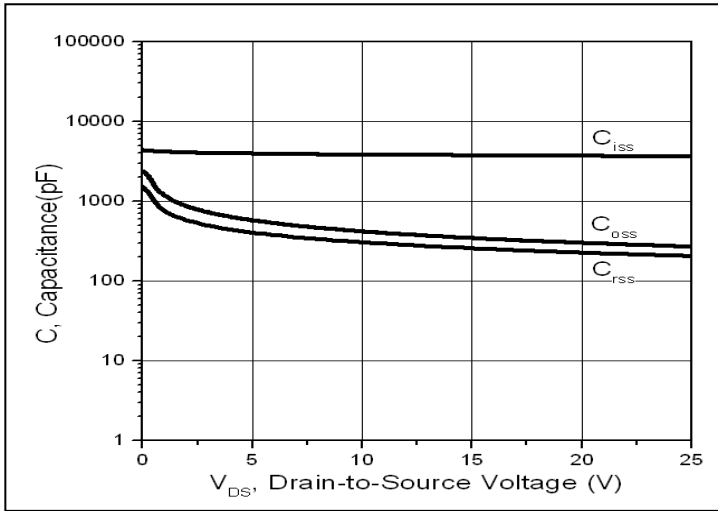


Figure 7: Capacitance vs Vds

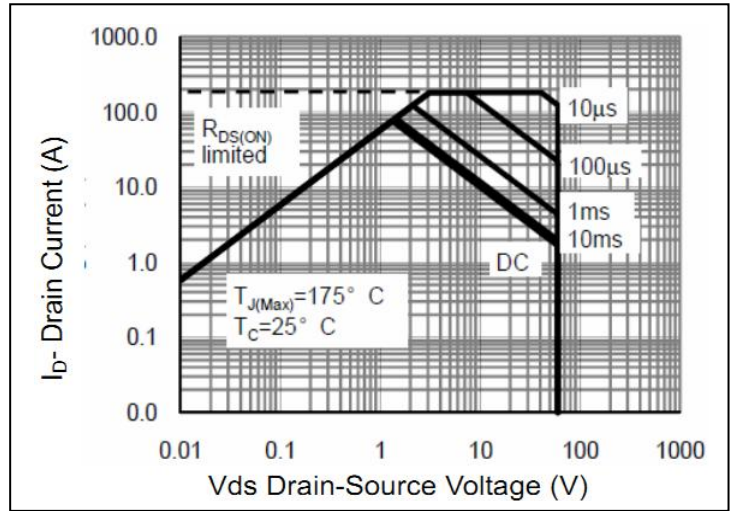


Figure 8: Safe Operation Area

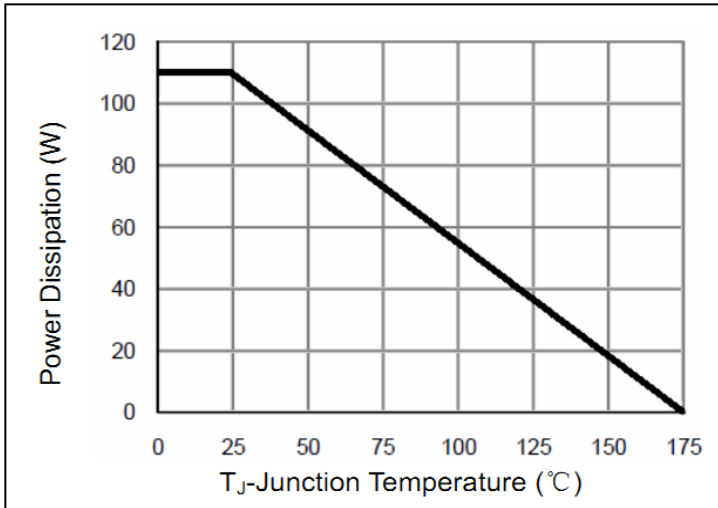


Figure 9: Power De-rating

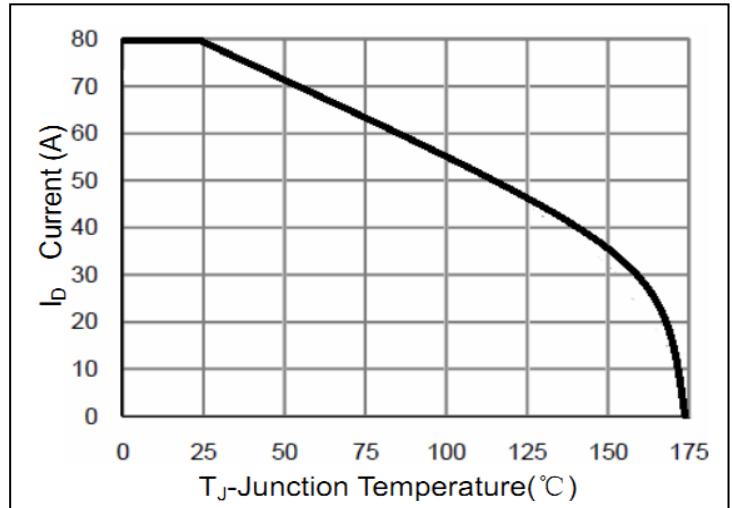


Figure 10: Id Current-Junction Temperature

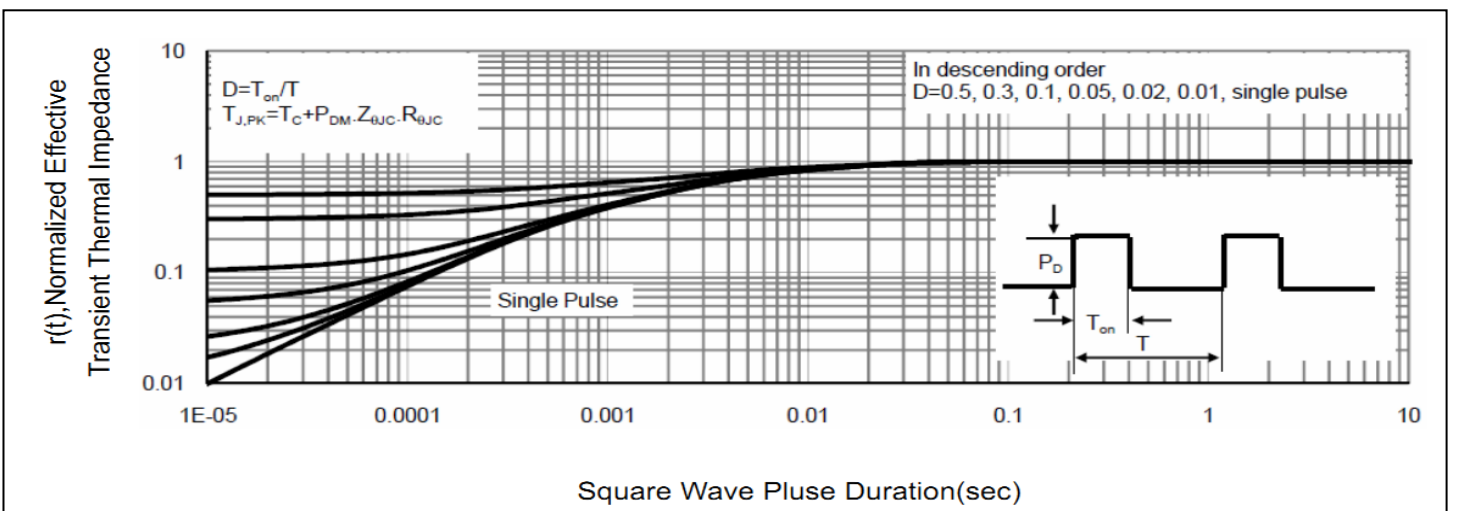
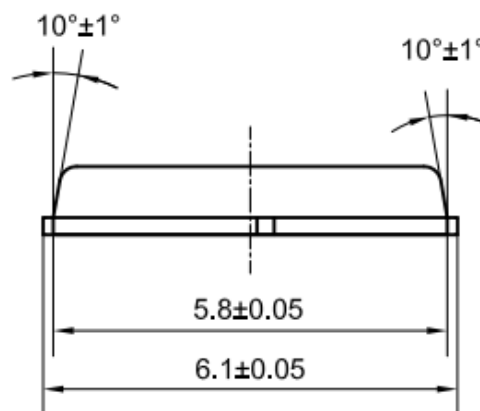
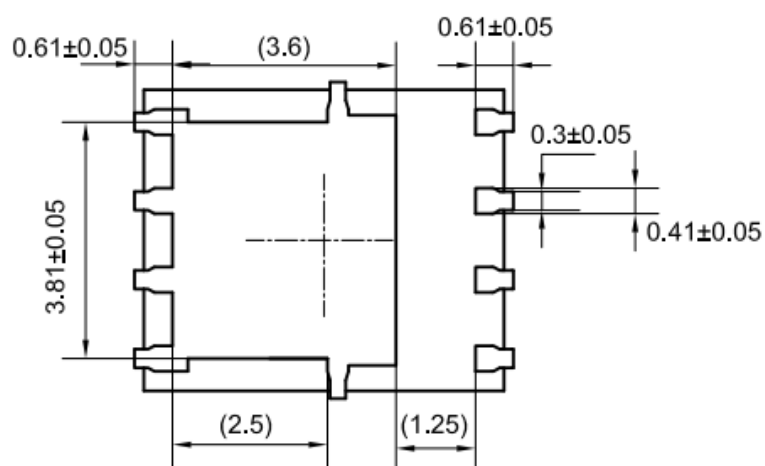
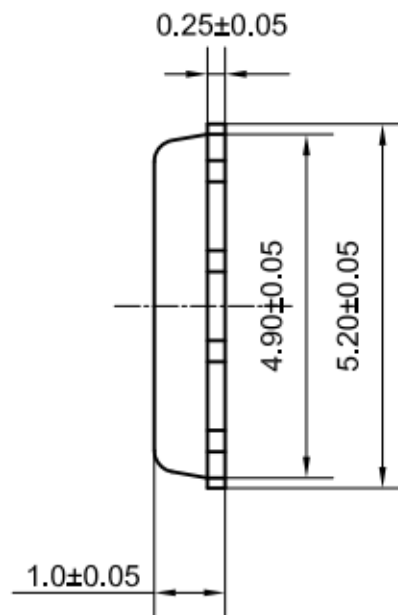
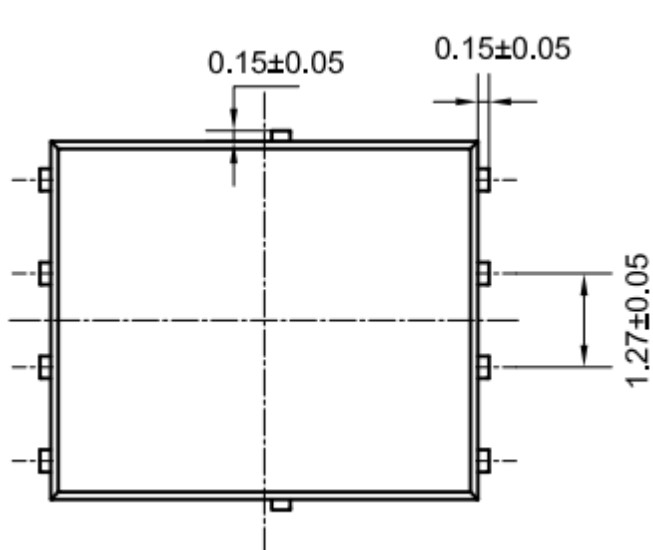


Figure 11: Normalized Maximum Transient Thermal Impedance

Mechanical Data:



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