

PRELIMINARY

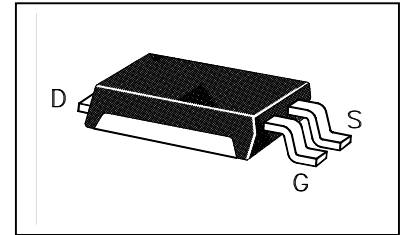
Features

- Rugged POWERMITE 3® Surface Mount Package
- Low On-State Resistance
- Avalanche and Surge Rated
- High Frequency Switching
- Ultra Low Leakage current
- UIS rated
- Available with Lot Acceptance Testing

**SURFACE MOUNT
N – CHANNEL
MOSFET**

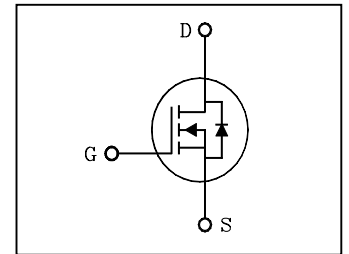
Description

This device is an N-Channel enhancement mode, high density MOSFET. It is passivated with 4 um (40 kA) of oxynitride, and supplied in a three leaded package.



Maximum Ratings

PARAMETER	SYMBOL	VALUE	UNIT
Drain-to-Source Voltage	V_{DSS}	1000	Volts
Gate-to-Source Voltage	V_{GS}	+/- 20	Volts
Continuous Drain Current @ TC= 25°C	I_{D1}	1.0	Amps
Continuous Drain Current @ TC=100°C	I_{D2}	0.27	Amps
Avalanche Current	I_{AR}	1.0	Amps
Repetitive Avalanche Energy	E_{AR}	3.5	mJ
Single Pulse Avalanche Energy	E_{AS}	120	mJ
Operating & Storage Junction Temperature Range	T_J, T_{STG}	- 40 to +125	°C
Steady-state Thermal Resistance, Junction-to-Tab	$R_{\theta J-TAB}$	2.5	°C/Watt



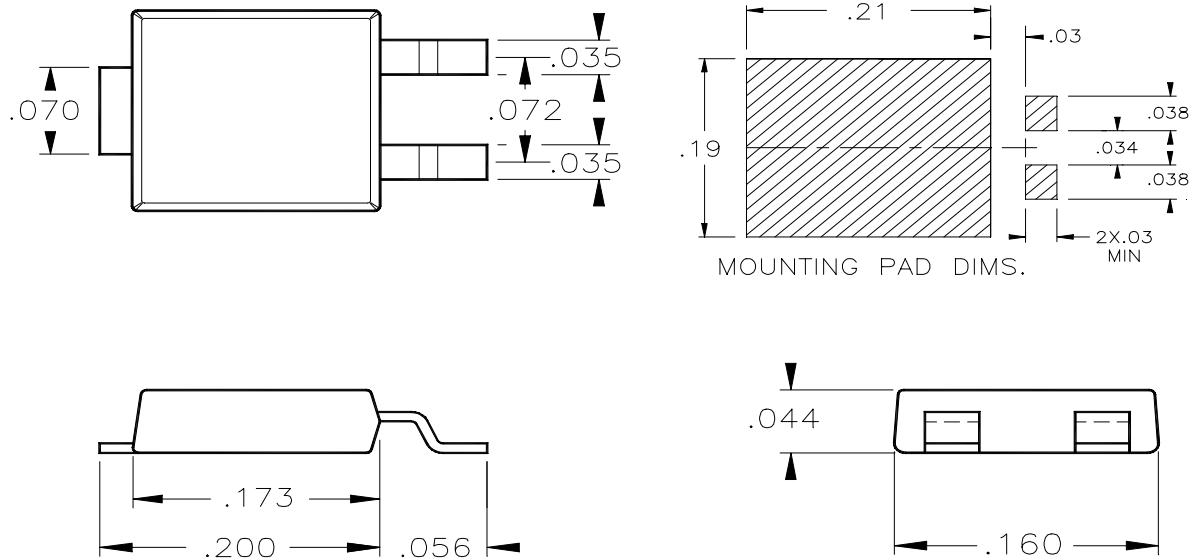
Static Electrical Characteristics

SYMBOL	CHARACTERISTICS / TEST CONDITIONS	MIN	TYP	MAX	UNIT
BV_{DSS}	Drain to Source Breakdown Voltage ($V_{GS}=0V, I_D=0.25mA$)	1000			Volts
$V_{GS(TH)2}$	Gate Threshold Voltage ($V_{GS}=V_{DS}, I_D=1mA, T_J=37°C$)		3.4		Volts
$V_{GS(TH)1}$	Gate Threshold Voltage ($V_{GS}=V_{DS}, I_D=1mA, T_J=25°C$)	2	3.5	4.5	Volts
$R_{DS(ON)1}$	Drain to Source ON-State Resistance ($V_{GS}=10V, I_D=I_{D1}, T_J=25°C$)		12.5	13.5	Ohms
$R_{DS(ON)2}$	Drain to Source ON-State Resistance ($V_{GS}=7V, I_D=5...150ma, T_J=37°C$)		12.5		Ohms
$R_{DS(ON)3}$	Drain to Source ON-State Resistance ($V_{GS}=7V, I_D=5...150ma, T_J=25°C$)		11.5		Ohms
$R_{DS(ON)4}$	Drain to Source ON-State Resistance ($V_{GS}=7V, I_D=5...150ma, T_J=60°C$)		15.0		Ohms
$R_{DS(ON)5}$	Drain to Source ON-State Resistance ($V_{GS}=7V, I_D=I_{D1}, T_J=125°C$)		25.5		Ohms
I_{DSS1}	Zero Gate Voltage-Drain Current ($V_{DS}=80\%BVDSS, V_{GS}=0V, T_J= 25°C$)			25	uA
I_{DSS2}	Zero Gate Voltage-Drain Current ($V_{DS}=80\%BVDSS, V_{GS}=0V, T_J=125°C$)			250	uA
I_{GSS1}	Gate to Source Leakage Current ($V_{GS}= \pm 20V, V_{DS}=0V, T_J= 25°C$)			± 100	nA
I_{GSS2}	Gate to Source Leakage Current ($V_{GS}= \pm 20V, V_{DS}=0V, T_J= 37°C$)		10.0		nA
I_{GSS3}	Gate to Source Leakage Current ($V_{GS}= \pm 20V, V_{DS}=0V, T_J=125°C$)			25	uA

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Dynamic Electrical Characteristics

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Ciss	Input Capacitance	$V_{GS} = 0\text{ V}$		290	375	pF
Coss	Output Capacitance	$V_{DS} = 25\text{ V}$		36	50	pF
Crss	Reverse Transfer Capacitance	$f = 1\text{ MHz}$		15	30	pF
Qg	Total Gate Charge	$V_{GS} = 10\text{ V}$		20		nC
Qgs	Gate to Source Charge	$V_{DS} = 0.5 V_{DSS}$		1.0		nC
Qgd	Gate to Drain Charge	$I_C = 20\text{ mA}$		10		nC
td (on)	Turn-ON Delay Time	Resistive Switching (25°C)		6.3		ns
tr	Rise Time	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 BV_{DSS}$		5.9		ns
td	Turn-OFF Delay Time	$I_D = 20\text{ mA}$		315		ns
tf	Fall Time	$R_g = 1.6\ \Omega$		2.6		us
td (on)	Turn-ON Delay Time	Resistive Switching (25°C)		6.3		ns
tr	Rise Time	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 BV_{DSS}$		5.8		ns
td (off)	Turn-OFF Delay Time	$I_D = 100\text{ mA}$		76		ns
tf	Fall Time	$R_g = 1.6\ \Omega$		470		ns
VSD	Diode Forward Voltage	$V_{GS} = 0\text{ V}, I_S = 1\text{ A}, T_J = 37^\circ\text{C}$		0.825	1.0	V
trr	Reverse Recovery Time	$I_S = 1\text{ A}, di/dt = 100\text{ A/us}$		121	300	ns
Qrr	Reverse Recovery Charge	$I_S = 1\text{ A}, di/dt = 100\text{ A/us}$		0.415	0.8	uC



DIMENSIONS ARE NOMINAL INCHES

MECHANICAL SPECIFICATIONS