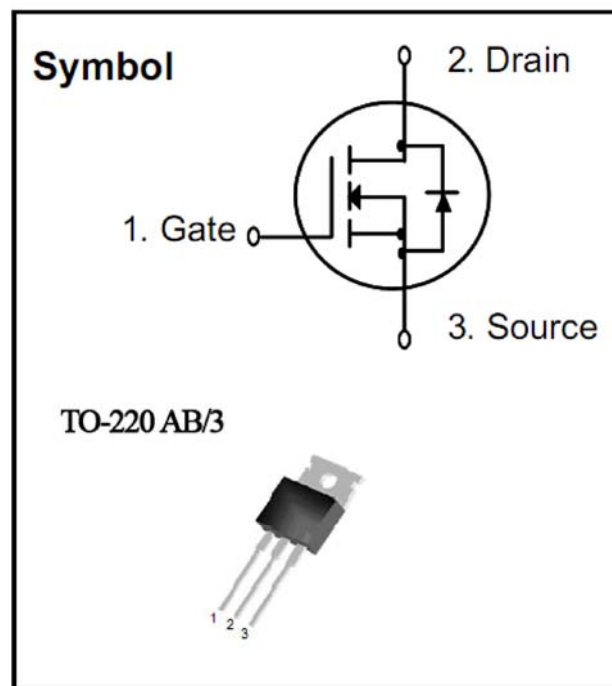


N-Channel MOSFET

Features

- $R_{DS(on)}$ (Max 0.55 Ω)@ $V_{GS}=10V$
- Gate Charge (Typical 38 nC)
- Maximum Junction Temperature Range (150 °C)



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DSS}	Drain to Source Voltage	400	V
I_D	Continuous Drain Current(@ $T_C = 25\text{ }^\circ\text{C}$)	10	A
	Continuous Drain Current(@ $T_C = 100\text{ }^\circ\text{C}$)	6.3	A
I_{DM}	Drain Current Pulsed	40 ¹⁾	A
V_{GS}	Gate to Source Voltage	± 25	V
E_{AS}	Single Pulsed Avalanche Energy	450 ²⁾	mJ
E_{AR}	Repetitive Avalanche Energy	13.4 ¹⁾	mJ
dv/dt	Peak Diode Recovery dv/dt	5.5 ³⁾	V/ns
P_D	Total Power Dissipation(@ $T_C = 25\text{ }^\circ\text{C}$)	134	W
	Derating Factor above 25 °C	1.08	W/°C
T_{STG}	Operating Junction Temperature	-55 ~ 150	°C
T_J	Storage Temperature	150	°C

Notes

- 1) Repeativity rating : pulse width limited by junction temperature
- 2) $L = 7.9\text{ mH}$, $I_{AS} = 10.0\text{ A}$, $V_{DD} = 50\text{ V}$, $R_G = 25\text{ }\Omega$, Starting $T_J = 25\text{ }^\circ\text{C}$
- 3) $I_{SD} \leq 10.0\text{ A}$, $di/dt \leq 300\text{ A/us}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25\text{ }^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Value			Units
		Min.	Typ.	Max.	
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	-	-	0.93	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient*	-	0.5	-	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	-	-	62.5	$^{\circ}\text{C}/\text{W}$

* When mounted on the minimum pad size recommended (PCB Mount)

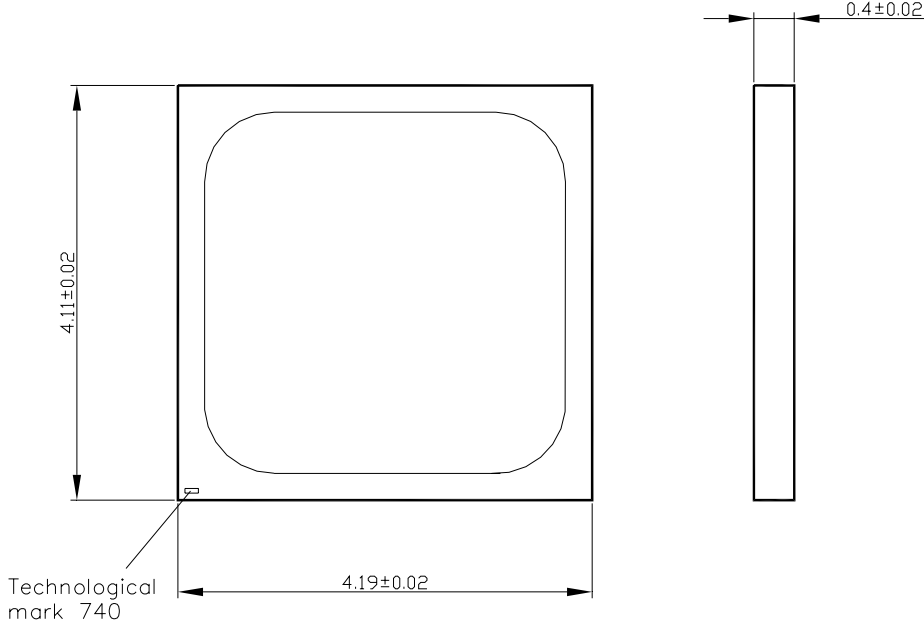
Source-Drain Diode Characteristics and Maximum Ratings

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
I_S	Maximum Continuous Source-Drain Diode Forward Current		-	-	10	A
I_{SM}	Maximum Pulsed Source-Drain Diode Forward Current		-	-	40	
V_{SD}	Drain-Source Diode Forward Voltage	$I_S = 10.0 \text{ A}, V_{GS} = 0 \text{ V}$	-	-	1.5	V
t_{rr}	Reverse Recovery Time	$I_S = 10.0 \text{ A}, V_{GS} = 0 \text{ V}, dI/dt = 100 \text{ A}/\mu\text{s}$	-	225	-	ns
Q_{rr}	Reverse Recovery Charge		-	1.59	-	μC

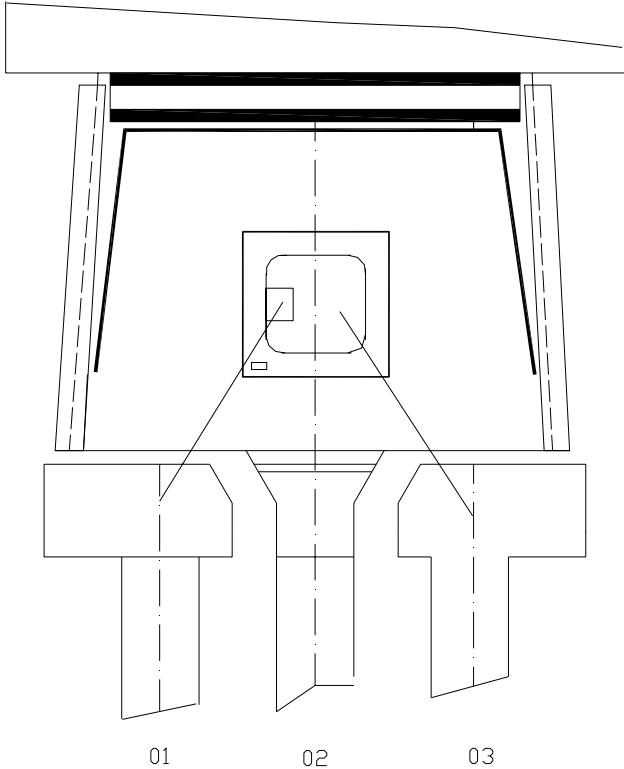
Electrical Characteristics ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}$, $I_D = 250\text{ }\mu\text{A}$	400	-	-	V
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temperature coefficient	$I_D = 250\text{ }\mu\text{A}$, referenced to $25\text{ }^\circ\text{C}$	-	0.5	-	V/ $^\circ\text{C}$
I_{DSS}	Drain-Source Leakage Current	$V_{DS} = 400\text{ V}$, $V_{GS} = 0\text{ V}$	-	-	1	μA
		$V_{DS} = 320\text{ V}$, $T_C = 125\text{ }^\circ\text{C}$	-	-	10	μA
I_{GSS}	Gate-Source Leakage, Forward	$V_{GS} = 25\text{ V}$, $V_{DS} = 0\text{ V}$	-	-	100	nA
	Gate-source Leakage, Reverse	$V_{GS} = -25\text{ V}$, $V_{DS} = 0\text{ V}$	-	-	-100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$	2.0	-	4.0	V
$R_{DS(ON)}$	Static Drain-Source On-state Resistance	$V_{GS} = 10\text{ V}$, $I_D = 5.0\text{ A}$	-	0.44	0.55	Ω
g_{FS}	Forward Transconductance	$V_{GS} = 40\text{ V}$, $I_D = 5.0\text{ A}$ Pulse Width $\leq 300\mu\text{s}$, $Q > 50$	-	9.0	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$	-	1570	2040	pF
C_{oss}	Output Capacitance		-	150	195	
C_{rss}	Reverse Transfer Capacitance		-	15	20	
Dynamic Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = 200\text{ V}$, $I_D = 10.0\text{ A}$, $R_G = 25\text{ }\Omega$ Pulse Width $\leq 300\mu\text{s}$, $Q > 50$	-	25	60	ns
t_r	Rise Time		-	75	160	
$t_{d(off)}$	Turn-off Delay Time		-	115	240	
t_f	Fall Time		-	70	150	
Q_g	Total Gate Charge	$V_{DS} = 320\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 10.0\text{ A}$	-	38	50	nC
Q_{gs}	Gate-Source Charge		-	8	-	
Q_{gd}	Gate-Drain Charge(Miller Charge)		-	13	-	

Chip size



Package Chip



Package Dimensions TO-220 AB/3

