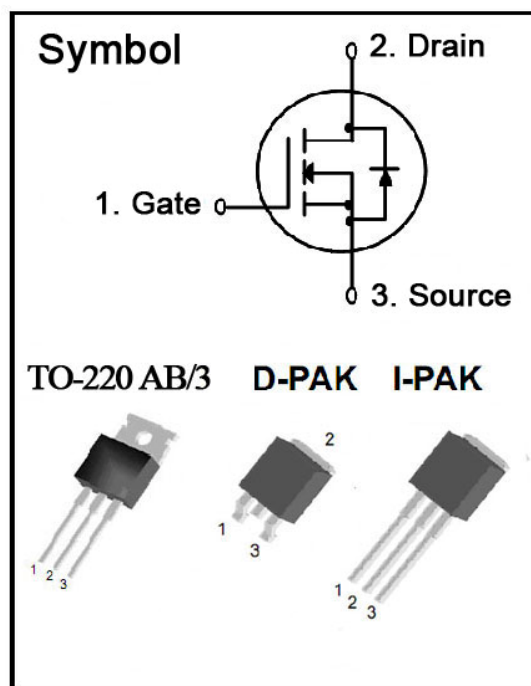


N-Channel MOSFET

Features

- $R_{DS(on)}$ (Max 12 Ω)@ $V_{GS}=10$ V
- Gate Charge (Typical 4.5 nC)
- Maximum Junction Temperature Range (150 °C)



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DSS}	Drain to Source Voltage	600	V
I_D	Continuous Drain Current(@ $T_C = 25$ °C)	0.9	A
	Continuous Drain Current(@ $T_C = 100$ °C)	0.57	A
I_{DM}	Drain Current Pulsed	3.0 ¹⁾	A
V_{GS}	Gate to Source Voltage	± 30	V
E_{AS}	Single Pulsed Avalanche Energy	50 ²⁾	mJ
E_{AR}	Repetitive Avalanche Energy	2.8 ¹⁾	mJ
dv/dt	Peak Diode Recovery dv/dt	5.5 ³⁾	V/ns
P_D	Total Power Dissipation(@ $T_C = 25$ °C)	28	W
	Derating Factor above 25 °C	0.22	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)- $L = 115$ mH, $I_{AS} = 0.9$ A, $V_{DD} = 50$ V, $R_G = 25$ Ω , Starting $T_J = 25$ °C
- 3)- $I_{SD} \leq 1.0$ A, $di/dt \leq 300$ A/us, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25$ °C

Thermal Characteristics

Symbol	Parameter	Value			Units
		Min.	Typ.	Max.	
R _{θJC}	Thermal Resistance, Junction-to-Case	-	-	0.85 ¹⁾	°C/W
		-	-	4.53	
R _{θJA}	Thermal Resistance, Junction-to-Ambient	-	0.5 ¹⁾	-	°C/W
		-	-	50	
R _{θJA}	Thermal Resistance, Junction-to-Ambient	-	-	62.5 ¹⁾	°C/W
		-	-	110	

¹⁾... For package TO-220 AB/3

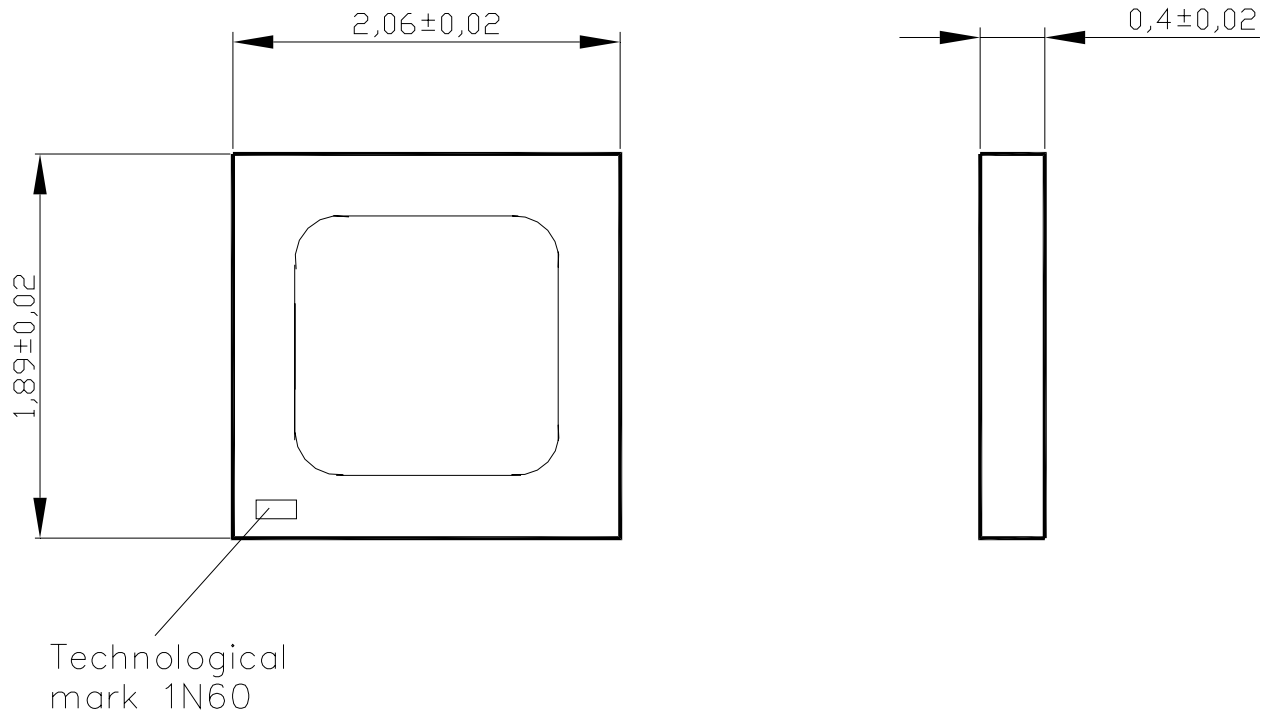
Source-Drain Diode Characteristics and Maximum Ratings

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
I _S	Maximum Continuous Source-Drain Diode Forward Current		-	-	0.9	A
I _{SM}	Maximum Pulsed Source-Drain Diode Forward Current		-	-	3.0	
V _{SD}	Diode Forward Voltage	I _S = 0.9 A, V _{GS} = 0 V	-	-	1.4	V
t _{rr}	Reverse Recovery Time	I _S = 1.0 A, V _{GS} = 0 V, dI _F /dt = 100 A/us	-	190	-	ns
Q _{rr}	Reverse Recovery Charge	Pulse Width ≤ 300us, Q > 50	-	0.5	-	uC

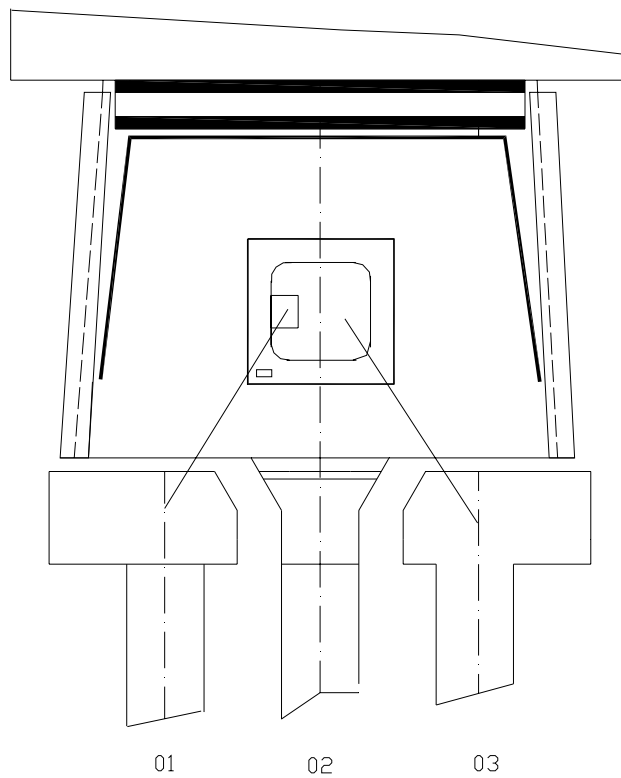
Electrical Characteristics ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}$, $I_D = 250\text{ }\mu\text{A}$	600	-	-	V
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temperature coefficient	$I_D = 250\text{ }\mu\text{A}$, referenced to $25\text{ }^\circ\text{C}$	-	0.65	-	V/ $^\circ\text{C}$
I_{DSS}	Drain-Source Leakage Current	$V_{DS} = 600\text{ V}$, $V_{GS} = 0\text{ V}$	-	-	10	μA
		$V_{DS} = 480\text{ V}$, $T_C = 125\text{ }^\circ\text{C}$	-	-	100	μA
I_{GSS}	Gate-Source Leakage, Forward	$V_{GS} = 30\text{ V}$, $V_{DS} = 0\text{ V}$	-	-	100	nA
	Gate-source Leakage, Reverse	$V_{GS} = -30\text{ V}$, $V_{DS} = 0\text{ V}$	-	-	-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	$V_{GS} = 10\text{ V}$, $I_D = 0.45\text{ A}$	-	9.9	12	Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$	-	155	200	pF
C_{oss}	Output Capacitance		-	20	26	
C_{rss}	Reverse Transfer Capacitance		-	3.0	4.0	
Dynamic Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = 300\text{ V}$, $I_D = 1.0\text{ A}$, $R_G = 25\text{ }\Omega$ Pulse Width $\leq 300\mu\text{s}$, $Q > 50$	-	10	30	ns
t_r	Rise Time		-	20	50	
$t_{d(off)}$	Turn-off Delay Time		-	16	45	
t_f	Fall Time		-	25	60	
Q_g	Total Gate Charge	$V_{DS} = 480\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 1.0\text{ A}$	-	4.5	6.0	nC
Q_{gs}	Gate-Source Charge		-	1.1	-	
Q_{gd}	Gate-Drain Charge(Miller Charge)		-	2.0	-	

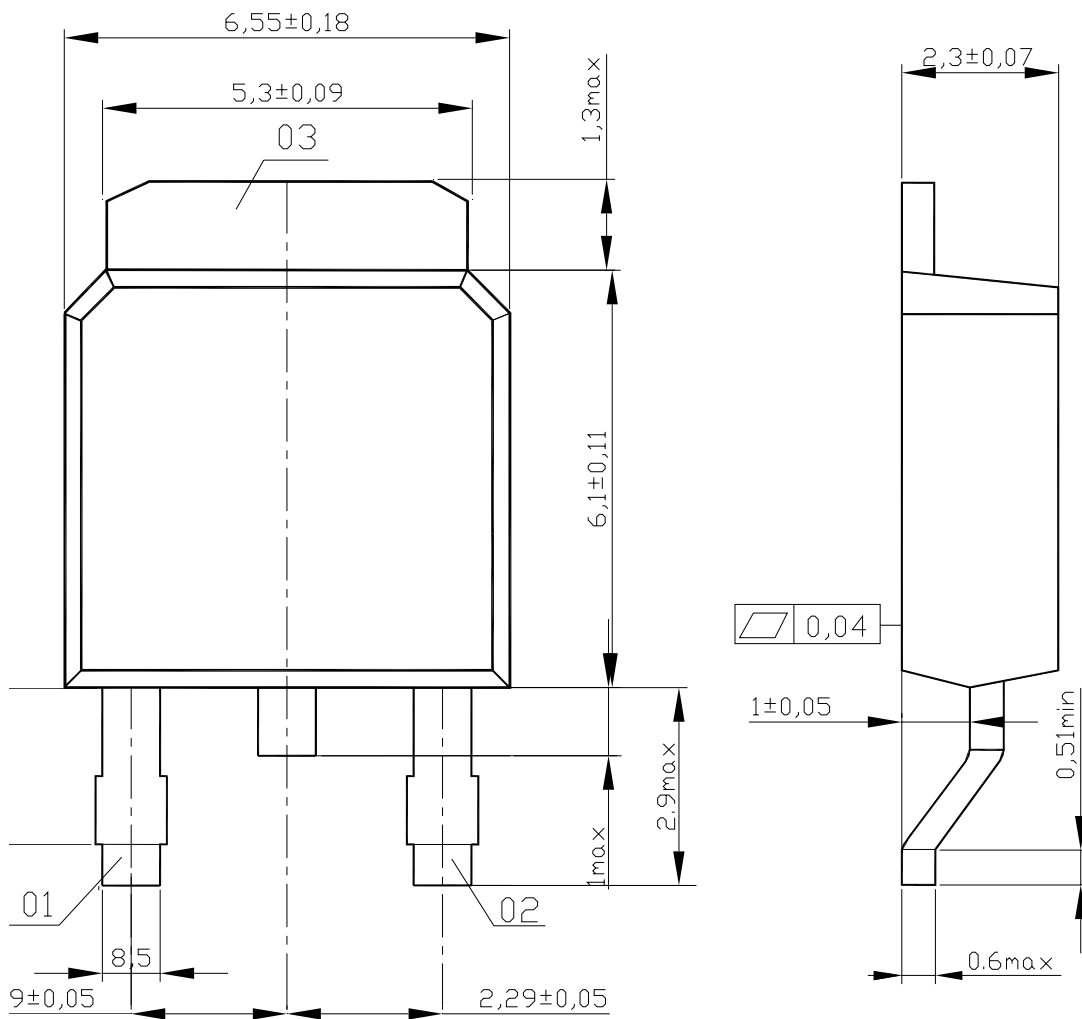
Chip size



Package Chip



Package Dimensions D-PAK



Package Dimensions I-PAK

