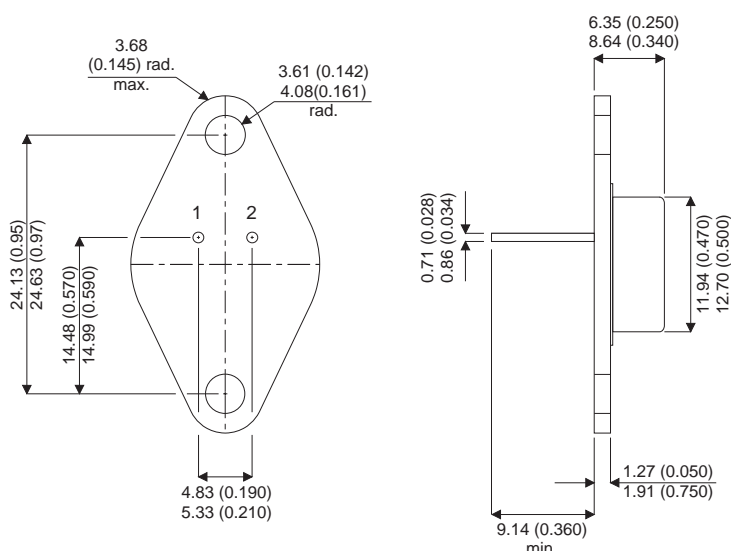


**MECHANICAL DATA**

Dimensions in mm (inches)


**TO-66 METAL PACKAGE (TO213AA)**
**Underside View**

Pin 1 = Gate

Pin 2 = Source

Case = Drain

**N-CHANNEL  
POWER MOSFET  
FOR HI-REL  
APPLICATIONS**

**$V_{DSS}$  200V**  
 **$I_{D(cont)}$  13A**  
 **$R_{DS(on)}$  0.18 $\Omega$**

**FEATURES**

- HERMETICALLY SEALED TO-66 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- SCREENING OPTIONS AVAILABLE

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

$V_{GS}$	Gate – Source Voltage	$\pm 20V$
$I_D$	Continuous Drain Current @ $T_{case} = 25^{\circ}C$	13A
$I_D$	Continuous Drain Current @ $T_{case} = 100^{\circ}C$	8A
$I_{DM}$	Pulsed Drain Current	50A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	70W
	Linear Derating Factor	0.56W/ $^{\circ}C$
$T_J, T_{stg}$	Operating and Storage Temperature Range	$-55$ to $150^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.8 $^{\circ}C/W$ max.
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	50 $^{\circ}C/W$ max.

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV <sub>DSS</sub>	Drain – Source Breakdown Voltage	V <sub>GS</sub> = 0	I <sub>D</sub> = 250μA	200			V
ΔBV <sub>DSS</sub> ΔT <sub>J</sub>	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I <sub>D</sub> = 1mA			1.42		V/°C
R <sub>DS(on)</sub>	Static Drain – Source On–State Resistance	V <sub>GS</sub> = 10V	I <sub>D</sub> = 7A*		0.14	0.18	Ω
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub>	I <sub>D</sub> = 250μA	2		4	V
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> ≥ I <sub>D</sub> × R <sub>DS(on)</sub> I <sub>D</sub> = 7A*		6	9		S(Ω)
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>GS</sub> = 0	V <sub>DS</sub> = 0.8BV <sub>DSS</sub>			250	μA
		T <sub>J</sub> = 125°C				1000	
I <sub>GSS</sub>	Forward Gate – Source Leakage	V <sub>GS</sub> = 20V				100	nA
I <sub>GSS</sub>	Reverse Gate – Source Leakage	V <sub>GS</sub> = –20V				-100	
DYNAMIC CHARACTERISTICS							
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0			1275		pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> = 25V			500		
C <sub>rss</sub>	Reverse Transfer Capacitance	f = 1MHz			160		
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> = 10V I <sub>D</sub> = 16A			43	60	nC
Q <sub>gs</sub>	Gate – Source Charge	V <sub>DS</sub> = 0.8BV <sub>DSS</sub>			16		
Q <sub>gd</sub>	Gate – Drain (“Miller”) Charge				27		
t <sub>d(on)</sub>	Turn–On Delay Time	V <sub>DD</sub> = 75V			16	30	ns
t <sub>r</sub>	Rise Time	I <sub>D</sub> = 7A			27	60	
t <sub>d(off)</sub>	Turn–Off Delay Time	Z <sub>0</sub> = 4.7Ω			40	80	
t <sub>f</sub>	Fall Time				31	60	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I <sub>S</sub>	Continuous Source Current					13	A
I <sub>SM</sub>	Pulse Source Current					50	
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> = 13A	T <sub>J</sub> = 25°C			2	V
		V <sub>GS</sub> = 0					
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> = 13A	T <sub>J</sub> = 25°C			650	ns
Q <sub>rr</sub>	Reverse Recovery Charge	d <sub>i</sub> / d <sub>t</sub> ≤ 100A/μs V <sub>DD</sub> ≤ 50V				4.1	μC
PACKAGE CHARACTERISTICS							
L <sub>D</sub>	Internal Drain Inductance	(from 6mm down drain lead pad to centre of die)			5.0		nH
L <sub>S</sub>	Internal Source Inductance	(from 6mm down source lead to centre of source bond pad)			12.5		

\* Pulse width  $\leq 300\mu\text{s}$ ; Duty Cycle  $\leq 2\%$

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