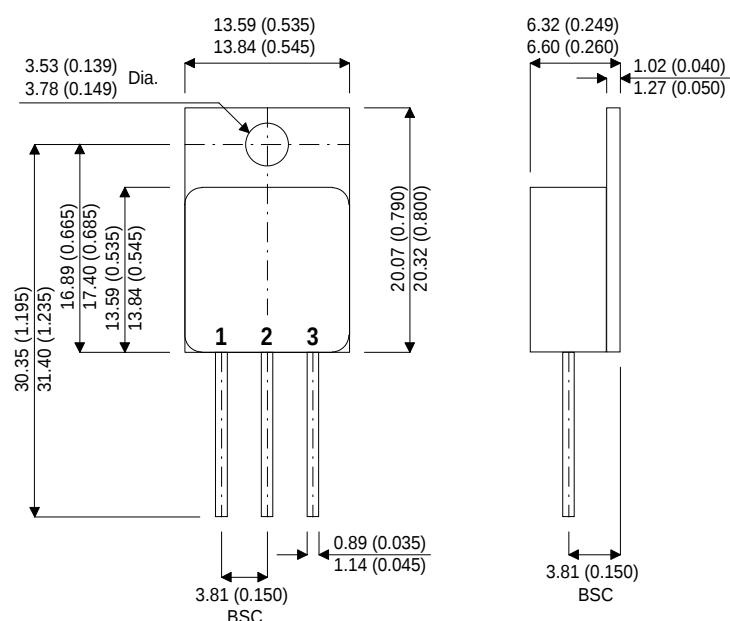


MECHANICAL DATA

Dimensions in mm (inches)


**N-CHANNEL
POWER MOSFET**

V_{DSS}	400V
$I_{D(cont)}$	14A
$R_{DS(on)}$	0.315Ω

FEATURES

- N-CHANNEL MOSFET
- HIGH VOLTAGE
- INTEGRAL PROTECTION DIODE
- HERMETIC ISOLATED TO-254 PACKAGE
- CERAMIC SURFACE MOUNT PACKAGE OPTION

TO-254AA – Isolated Metal Package

Pin 1 – Drain Pin 2 – Source Pin 3 – Gate

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current	$@ V_{GS} = 10V, T_C = 25^\circ\text{C}$ 14A $@ V_{GS} = 10V, T_C = 100^\circ\text{C}$ 9.0A
I_{DM}	Pulsed Drain Current	56A
P_D	Max. Power Dissipation	150W
	Linear Derating Factor	1.2W / °C
I_L	Avalanche Current, Clamped ¹	14A
dv / dt	Peak Diode Recovery ²	4V / ns
$R_{\theta JC}$	Thermal Resistance Junction – Case	0.83°C / W
$R_{\theta JA}$	Thermal Resistance Junction – Ambient	48°C / W
$R_{\theta CS}$	Thermal Resistance Case – Sink	0.21°C / W typ.
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 to 150°C
T_L	Lead Temperature (1.6mm from case for 10s)	300°C

 1) $V_{DD} = 50V$, Starting $T_J = 25^\circ\text{C}$, $L \geq 1mH$, $R_G = 25\Omega$, Peak $I_L = 27.4A$

 2) $I_{SD} \leq 27.4A$, $di/dt \leq 190A / \mu S$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^\circ\text{C}$, Suggested $R_G = 2.35\Omega$

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} = 0	I _D = 1mA	400			V
ΔBV _{DSS} ΔT _J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.46		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ²	V _{GS} = 10V	I _D = 9A			0.315	Ω
		V _{GS} = 10V	I _D = 14A			0.415	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250μA	2		4	V
g _{fs}	Forward Transconductance ²	V _{DS} ≥ 15V	I _{DS} = 9A	6			S(ṽ)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 0.8BV _{DSS}			25	μA
			T _J = 125°C			250	
I _{GSS}	Forward Gate – Source Leakage	V _{GS} = 20V				100	nA
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = –20V				–100	
DYNAMIC CHARACTERISTICS							
C _{iss}	Input Capacitance	V _{GS} = 0 V _{DS} = 25V f = 1MHz			2600		pF
C _{oss}	Output Capacitance				660		
C _{rss}	Reverse Transfer Capacitance				250		
C _{DC}	Drain – Case Capacitance				12		
Q _g	Total Gate Charge	V _{GS} = 10V		52		110	nC
Q _{gs}	Gate – Source Charge	I _D = 14A		5		18	
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5BV _{DSS}		25		65	
t _{d(on)}	Turn– On Delay Time	V _{DD} = 200V I _D = 14A R _G = 2.35Ω				35	ns
t _r	Rise Time					190	
t _{d(off)}	Turn–Off Delay Time					170	
t _f	Fall Time					130	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					14	A
I _{SM}	Pulse Source Current ¹					56	
V _{SD}	Diode Forward Voltage ²	I _S = 14A T _J = 25°C V _{GS} = 0				1.7	V
t _{rr}	Reverse Recovery Time ²	I _F = 14A T _J = 25°C				1200	ns
Q _{rr}	Reverse Recovery Charge ²	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				11	μC
t _{on}	Forward Turn–On Time			Negligible			
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance	Measured from 6mm down drain lead to centre of die			8.7		nH
L _S	Internal Source Inductance	Measured from 6mm down source lead to source bond pad			8.7		

Notes

- 1) Repetitive Rating – Pulse width limited by Maximum Junction Temperature
- 2) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$.