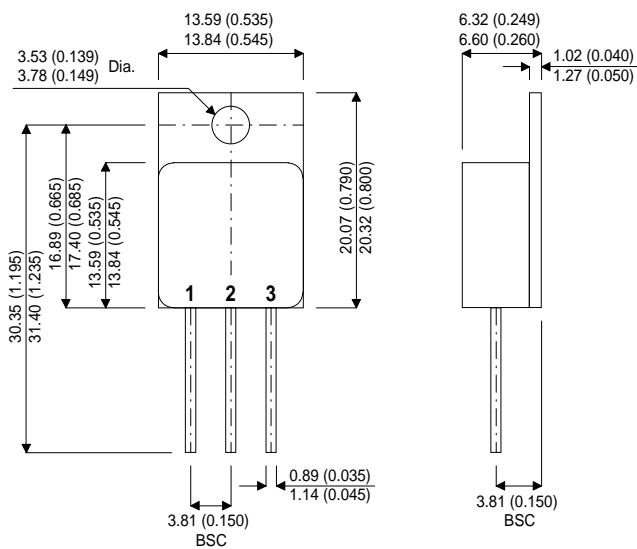


MECHANICAL DATA

Dimensions in mm (inches)



TO-254AA – Metal Package

Pin 1 – Drain

Pin 2 – Source

Pin 3 – Gate

**N-CHANNEL
POWER MOSFET**

V_{DSS} **60V**
 $I_{D(cont)}$ **35A ***
 $R_{DS(on)}$ **0.027Ω**

FEATURES

- HERMETICALLY SEALED ISOLATED PACKAGE
- AVALANCHE ENERGY RATING
- SIMPLE DRIVE REQUIREMENTS
- ALSO AVAILABLE IN TO-220 METAL AND SURFACE MOUNT PACKAGES
- EASE OF PARALLELING

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

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 10V, T_{case} = 25^{\circ}C$)	35A*
I_D	Continuous Drain Current ($V_{GS} = 10V, T_{case} = 100^{\circ}C$)	35A
I_{DM}	Pulsed Drain Current ¹	220A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	150W
	Linear Derating Factor	1.2W/ $^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	480mJ
dv/dt	Peak Diode Recovery ³	4.5V/ns
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to 150 $^{\circ}C$
T_L	Lead Temperature measured $1/16"$ (1.6mm) from case for 10 sec.	300 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.83 $^{\circ}C/W$
$R_{\theta CS}$	Thermal Resistance Case to Sink (Typical)	0.21 $^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	48 $^{\circ}C/W$

Notes

- 1) Repetitive Rating – Pulse width limited by Maximum Junction Temperature
 - 2) @ $V_{DD} = 25V, L \geq 450\mu H, R_G = 25\Omega, Peak I_L = 35A, Starting T_J = 25^{\circ}C$
 - 3) @ $I_{SD} \leq 35A, di/dt \leq 200A/\mu s, V_{DD} \leq BV_{DSS}, T_J \leq 125^{\circ}C, SUGGESTED R_G = 2.35\Omega$
- * I_D Current limited by pin diameter.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS					
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 1\text{mA}$	60		V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.68	$\text{V}/^{\circ}\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance ²	$V_{GS} = 10\text{V}$ $I_D = 35\text{A}$		0.027	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 250\mu\text{A}$	2	4	V
g_{fs}	Forward Transconductance ²	$V_{DS} \geq 15\text{V}$ $I_{DS} = 35\text{A}$	20		$\text{S}(\bar{\nu})$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$ $V_{DS} = 0.8BV_{DSS}$ $T_J = 125^{\circ}\text{C}$		25 250	μA
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$		100	nA
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$		-100	
DYNAMIC CHARACTERISTICS					
C_{iss}	Input Capacitance	$V_{GS} = 0$ $V_{DS} = 25\text{V}$ $f = 1\text{MHz}$		4600	pF
C_{oss}	Output Capacitance			2000	
C_{rss}	Reverse Transfer Capacitance			340	
C_{DC}	Drain – Case Capacitance			12	
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$	80	180	nC
Q_{gs}	Gate – Source Charge	$I_D = 35\text{A}$	20	45	
Q_{gd}	Gate – Drain (“Miller”) Charge	$V_{DS} = 0.5BV_{DSS}$	34	105	
$t_{d(on)}$	Turn– On Delay Time	$V_{DD} = 30\text{V}$ $I_D = 35\text{A}$ $R_G = 2.35\Omega$		33	ns
t_r	Rise Time			180	
$t_{d(off)}$	Turn–Off Delay Time			100	
t_f	Fall Time			100	
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current			35*	A
I_{SM}	Pulse Source Current ¹			220	
V_{SD}	Diode Forward Voltage ²	$I_S = 35\text{A}$ $T_J = 25^{\circ}\text{C}$ $V_{GS} = 0$		2.5	V
t_{rr}	Reverse Recovery Time ²	$I_F = 35\text{A}$ $T_J = 25^{\circ}\text{C}$		280	ns
Q_{rr}	Reverse Recovery Charge ²	$d_i / d_t \leq 100\text{A}/\mu\text{s}$ $V_{DD} \leq 50\text{V}$		2.2	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 $\leq 300\mu\text{s}$, $\delta \leq 2\%$
* I_S Current limited by pin diameter.