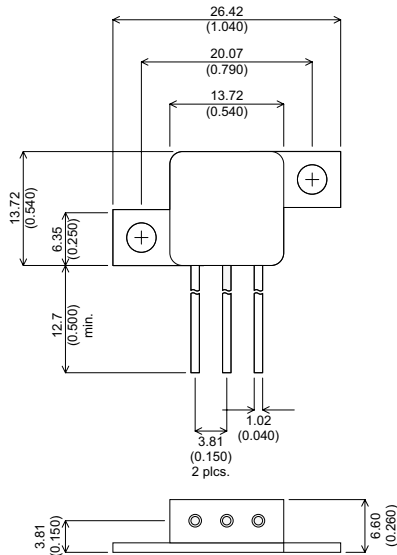


**MECHANICAL DATA**

Dimensions in mm (inches)


**TO-254Z – Package**

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

**N-CHANNEL  
POWER MOSFET**
 **$V_{DSS}$       100V**  
 **$I_{D(cont)}$     34A**  
 **$R_{DS(on)}$     0.070 $\Omega$** 
**FEATURES**

- REPETITIVE AVALANCHE RATING
- ISOLATED AND HERMETICALLY SEALED
- EASE OF PARALLELING
- SIMPLE DRIVE REQUIREMENTS

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

$V_{GS}$	Gate – Source Voltage	$\pm 20V$
$I_D$	Continuous Drain Current ( $V_{GS} = 10V$ , $T_{case} = 25^{\circ}C$ )	34A
$I_D$	Continuous Drain Current ( $V_{GS} = 10V$ , $T_{case} = 100^{\circ}C$ )	21A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	136A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	150W
	Linear Derating Factor	1.2W/ $^{\circ}C$
$T_J, T_{stg}$	Operating and Storage Temperature Range	-55 to 150 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.83 $^{\circ}C/W$
$R_{\theta JCS}$	Thermal Resistance Case to Sink(Typical)	0.21 $^{\circ}C/W$
$R_{\theta JCA}$	Thermal Resistance Junction-to-Ambient	48 $^{\circ}C/W$

**Notes**

- 1) Pulse Test: Pulse Width  $\leq 300\mu s$ ,  $\delta \leq 2\%$
- 2) @  $V_{DD} = 25V$ ,  $L \geq 200\mu H$ ,  $R_G = 25\Omega$ , Peak  $I_L = 34A$ , Starting  $T_J = 25^{\circ}C$
- 3) @  $I_{SD} \leq 34A$ ,  $di/dt \leq 70A/\mu s$ ,  $V_{DD} \leq BV_{DSS}$ ,  $T_J \leq 150^{\circ}C$ , Suggested  $R_G = 2.35\Omega$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
<b>STATIC ELECTRICAL RATINGS</b>					
$BV_{DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 250\mu\text{A}$	100	V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to $25^{\circ}\text{C}$ $I_D = 1\text{mA}$		0.13	$\text{V}/^{\circ}\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = 10\text{V}$	$I_D = 21\text{A}$		0.060 $\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	2	4 V
$g_{fs}$	Forward Transconductance	$V_{DS} \geq 15\text{V}$	$I_{DS} = 21\text{A}$	11	$\text{S}(\bar{v})$
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$ $T_J = 125^{\circ}\text{C}$		25 250 $\mu\text{A}$
$I_{GSS}$	Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$			100 nA
$I_{GSS}$	Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$			-100 nA
<b>DYNAMIC CHARACTERISTICS</b>					
$C_{iss}$	Input Capacitance	$V_{GS} = 0$		1900	pF
$C_{oss}$	Output Capacitance	$V_{DS} = 25\text{V}$		450	
$C_{riss}$	Reverse Transfer Capacitance	$f = 1\text{MHz}$		230	
$Q_g$	Drain to Case Capacitance	$V_{GS} = 10\text{V}$ $V_{DS} = 80\text{V}$	$I_D = 22\text{A}$		110 nC
$Q_{gs}$	Total Gate Charge	$I_D = 34\text{A}$			15 nC
$Q_{gd}$	Gate – Source Charge	$V_{DS} = 80\text{V}$			58 nC
$t_{d(on)}$	Gate – Drain (“Miller”) Charge	$V_{DD} = 50\text{V}$		11	ns
$t_r$	Turn–On Delay Time	$I_D = 22\text{A}$		56	
$t_{d(off)}$	Rise Time	$R_G = 3.6\Omega$		45	
$t_f$	Turn–Off Delay Time			40	
<b>SOURCE – DRAIN DIODE CHARACTERISTICS</b>					
$I_S$	Continuous Source Current				34 A
$I_{SM}$	Pulse Source Current <sup>2</sup>				136 A
$V_{SD}$	Diode Forward Voltage	$I_S = 22\text{A}$ $V_{GS} = 0$	$T_J = 25^{\circ}\text{C}$		1.6 V
$t_{rr}$	Reverse Recovery Time	$I_F = 22\text{A}$	$T_J = 25^{\circ}\text{C}$	180	270 ns
$Q_{rr}$	Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$	$V_{DD} \leq 50\text{V}$	1.2	1.8 $\mu\text{C}$
$t_{on}$	Forward Turn–On Time			Negligible	

**Notes**

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