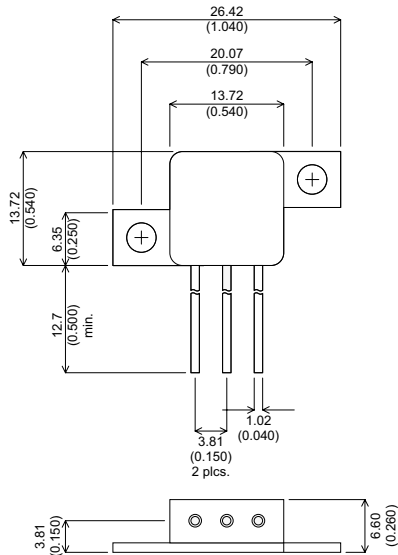


MECHANICAL DATA

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
$R_{DS(on)}$	0.070Ω

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 ¹	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
STATIC ELECTRICAL RATINGS					
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°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 Ω
$V_{GS(th)}$	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 μA 250
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
DYNAMIC CHARACTERISTICS					
C_{iss}	Input Capacitance	$V_{GS} = 0$		1900	pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$		450	
C_{rss}	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	
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current				34 A
I_{SM}	Pulse Source Current ²				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 μC
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.