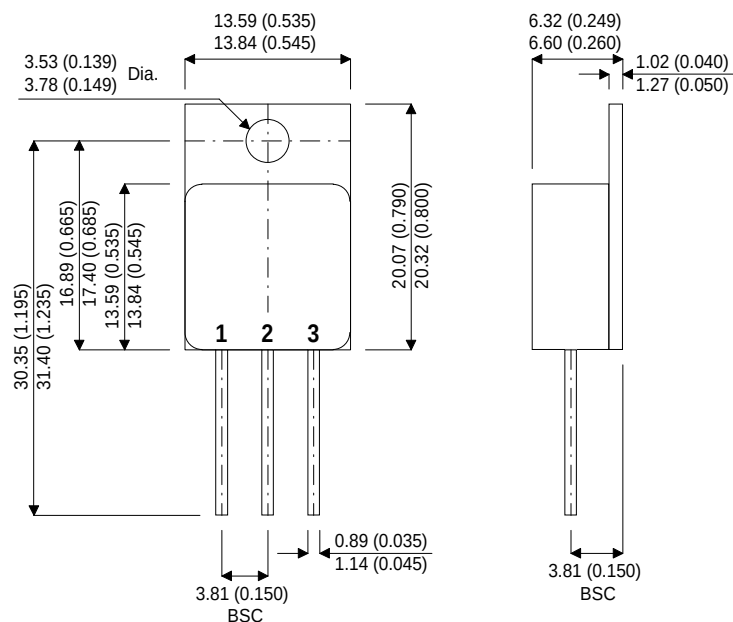


MECHANICAL DATA

Dimensions in mm (inches)


TO-254 – Metal Package

Pin 1 – Drain

Pin 2 – Source

Pin 3 – Gate

**P-CHANNEL
MOS
TRANSISTOR**

V_{DSS}	-50V
$I_{D(cont)}$	-18A
$R_{DS(on)}$	0.14Ω

FEATURES

- P CHANNEL
- REPETITIVE AVALANCHE RATED
- DYNAMIC dv/dt RATING
- FAST SWITCHING
- 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 ($V_{GS} = -10V$, $T_{case} = 25^{\circ}C$)	-18A
I_D	Continuous Drain Current ($V_{GS} = -10V$, $T_{case} = 100^{\circ}C$)	-13A
I_{DM}	Pulsed Drain Current ¹	-72A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	88W
	Linear Derating Factor	0.59W/ $^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	370mJ
I_{AR}	Avalanche Current ¹	-18A
E_{AR}	Repetitive Avalanche Energy ¹	8.8mJ
dv/dt	Peak Diode Recovery ³	-4.5V/ns
T_J	Operating Junction Temperature	-55 to +175 $^{\circ}C$
T_{STG}	Storage Temperature Range	-55 to +200 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.6 $^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	48 $^{\circ}C/W$

Notes

- 1) Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2) @ $V_{DD} = -25V$, $L = 1.3mH$, $R_G = 25\Omega$, $I_{AS} = -18A$, Starting $T_J = 25^{\circ}C$.
- 3) @ $I_{SD} \leq -18A$, $di/dt \leq 170A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 175^{\circ}C$.

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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 = -250μA	-50			V
ΔBV _{DSS} ΔT _J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = -1mA			-0.060		V/°C
R _{DS(on)}	Static Drain – Source On Resistance ¹	V _{GS} = -10V	I _D = -11A			0.14	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = -250μA	-2		-4	V
g _{fs}	Forward Transconductance ¹	V _{DS} = -25V	I _D = -11A	5.9			S
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -60V	V _{GS} = 0			-100	μA
		V _{DS} = -48V	V _{GS} = 0 T _J = 125°C			-500	
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			1100		pF
C _{oss}	Output Capacitance	V _{DS} = -25V			620		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			100		
Q _g	Total Gate Charge ¹	I _D = -18A				34	nC
Q _{gs}	Gate – Source Charge ¹	V _{DS} = -48V				9.9	
Q _{gd}	Gate – Drain (“Miller”) Charge ¹	V _{GS} = -10V				16	
t _{d(on)}	Turn–On Delay Time ¹	V _{DD} = -30V			18		nC
t _r	Rise Time ¹	I _D = -18A			120		
t _{d(off)}	Turn–Off Delay Time ¹	R _G = 12Ω			20		
t _f	Fall Time ¹	R _D = 1.5Ω			58		
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current (Body Diode)					-18	A
I _{SM}	Pulse Source Current ² (Body Diode)					-72	
V _{SD}	Diode Forward Voltage ¹	I _S = -18A	T _J = 25°C			-6.3	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery Time ¹	I _F = -18A	T _J = 25°C		100	200	ns
Q _{rr}	Reverse Recovery Charge ¹	d _i / d _t = 100A/μs			0.28	0.52	μC
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (from 6mm down lead to centre of drain bond pad)				4.5		nH
L _S	Internal Source Inductance (from 6mm down lead to centre of source bond pad)				7.5		

Notes

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