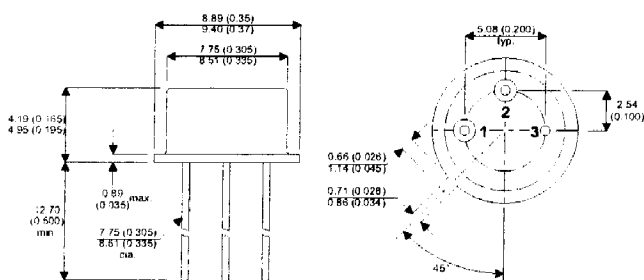


MECHANICAL DATA
 Dimensions in mm (inches)

**P-CHANNEL
 POWER MOSFETS**



TO-39 METAL PACKAGE

Underside View

Pin 1 = Emitter Pin 2 = Base Pin 3 = Collector

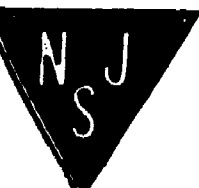
V_{DSS} - 100V
 $I_{D(cont)}$ - 6.5A
 $R_{DS(on)}$ 0.30Ω

FEATURES


- Single pulse avalanche energy rated
- SOA is power dissipation limited
- Nanosecond switching speeds
- Linear transfer characteristics
- High input impedance

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

V_{GS}	Gate – Source Voltage*	±20V
V_{DS}	Drain – Source Voltage*	-100V
V_{DG}	Drain – Gate Voltage ($R_{GS} = 20k\Omega$)*	-100V
I_D	Continuous Drain Current @ $T_C = 25^{\circ}C$ *	-6.5A
	@ $T_C = 100^{\circ}C$ *	-4.1A
I_{DM}	Pulsed Drain Current ² *	-25A
E_{AS}	Single Pulse Avalanche Current ³	500mJ
P_D	Power Dissipation @ $T_C = 25^{\circ}C$ *	25W
	Linear Derating Factor*	0.2W/ $^{\circ}C$
T_J, T_{STG}	Operating and Storage Junction Temperature Range*	-55 to +150 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case*	5 $^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	175 $^{\circ}C/W$



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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit		
STATIC ELECTRICAL RATINGS							
BV_{DSS}	Drain – Source Breakdown Voltage*	$V_{\text{GS}} = 0$	$I_{\text{D}} = 250\mu\text{A}$	-100		V	
$R_{\text{DS(on)}}$	Static Drain – Source On–State Resistance 1	$V_{\text{GS}} = -10\text{V}$	$I_{\text{D}} = -4.1\text{A}$		0.30*	Ω	
$V_{\text{GS(th)}}$	Gate Threshold Voltage*	$V_{\text{DS}} = V_{\text{GS}}$	$I_{\text{D}} = -0.25\text{mA}$	-2	-4	V	
I_{GSS}	Forward Gate – Source Leakage	$V_{\text{GS}} = -20\text{V}$			-100	nA	
I_{GSS}	Reverse Gate – Source Leakage	$V_{\text{GS}} = 20\text{V}$			100	nA	
I_{DSS}	Zero Gate Voltage Drain Current*	$V_{\text{DS}} = \text{Max rating} \times 0.8$ $V_{\text{GS}} = 0\text{V}$	$T_{\text{C}} = -125^{\circ}\text{C}$		-250 -1000	μA	
$V_{\text{DS(on)}}$	On-State Drain Voltage ¹	$V_{\text{DS}} \geq I_{\text{D(on)}} R_{\text{DS(on)max.}}$ $V_{\text{GS}} = -10\text{V}$	$I_{\text{D}} = -6.5\text{A}$		-2.1	V	
g_{fs}	Forward Transconductance 1	$V_{\text{DS}} = -5\text{V}$	$I_{\text{D}} = -4.1\text{A}$	2.5	3.5	7.5	(S \bar{O})
C_{iss}	Input Capacitance	$V_{\text{GS}} = 0\text{V}$	$V_{\text{DS}} = -25\text{V}$		500		pF
C_{oss}	Output Capacitance	$f = 1.0\text{ MHz}$			300		
C_{riss}	Reverse Transfer Capacitance				100		
Q_{g}	Total Gate Charge	$V_{\text{GS}} = -15\text{V}$	$I_{\text{D}} = -15\text{A}$		25	45	nC
Q_{gs}	Gate – Source Charge	$V_{\text{DS}} = 0.8\text{V Max Rating}$			13	23	
Q_{gd}	Gate – Drain ("Miller") Charge				12	22	
$t_{\text{d(on)}}$	Turn–On Delay Time				30	60	ns
t_{r}	Rise Time	$V_{\text{DD}} = -42\text{V}$	$I_{\text{D}} = -4.1\text{A}$		70	140	
$t_{\text{d(off)}}$	Turn–Off Delay Time	$Z_{\text{o}} = 50\Omega$			70	140	
t_{f}	Fall Time				70	140	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I_{S}	Continuous Source Current*	Modified MOSFET Symbol showing the integral reverse P-N Junction rectifier.			-6.5	A	
I_{SM}	Pulse Source Current [(Body Diode) ²]				-25	A	
V_{SD}	Diode Forward Voltage 1	$V_{\text{GS}} = 0$	$I_{\text{S}} = 6.5\text{A}$	$T_{\text{J}} = 25^{\circ}\text{C}$		4	V
t_{rr}	Reverse Recovery Time	$I_{\text{F}} = -6.5\text{A}$		$T_{\text{J}} = 25^{\circ}\text{C}$		250	ns
Q_{rr}	Reverse Recovery Charge	$di_{\text{F}}/dt = 100\text{ A}/\mu\text{s}$			1.8	μC	
t_{on}	Forward Turn–On Time				negligible	—	

*JEDEC Registered Value

1 Pulse Test: Pulse Width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

2 Repetitive Rating: Pulse width limited by max. junction temperature

3 $V_{\text{DD}} = 25\text{V}$ starting $T_{\text{j}} = 25^{\circ}\text{C}$, $L = 17.25\text{mH}$, $R_{\text{G}} = 25\Omega$, Peak $I_{\text{L}} = 6.5\text{A}$