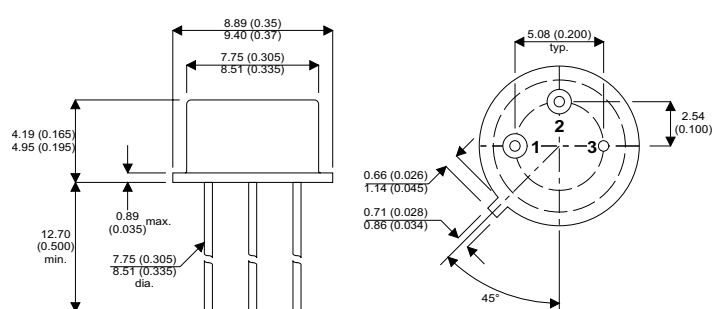


MECHANICAL DATA

Dimensions in mm (inches)


TO-39 METAL PACKAGE
Underside View

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

**P-CHANNEL
POWER MOSFETs**
 V_{DSS} - 100V
 $I_{D(cont)}$ - 6.5A
 $R_{DS(on)}$ 0.30 Ω
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*	$\pm 20V$
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 ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
STATIC ELECTRICAL RATINGS						
BV_{DSS}	Drain – Source Breakdown Voltage*	$V_{GS} = 0$	$I_D = 250\mu A$	-100	V	
$R_{DS(on)}$	Static Drain – Source On–State Resistance ¹	$V_{GS} = -10V$	$I_D = -4.1A$		0.30* Ω	
$V_{GS(th)}$	Gate Threshold Voltage*	$V_{DS} = V_{GS}$	$I_D = -0.25mA$	-2	-4 V	
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = -20V$			-100 nA	
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = 20V$			100 nA	
I_{DSS}	Zero Gate Voltage Drain Current*	$V_{DS} = \text{Max rating} \times 0.8$ $V_{GS} = 0V$			-250 -1000 μA	
$V_{DS(on)}$	On-State Drain Voltage ¹	$V_{DS} \geq I_{D(on)}R_{DS(on)max.}$ $V_{GS} = -10V$			$I_D = -6.5A$ -2.1 V	
g_{fs}	Forward Transconductance ¹	$V_{DS} = -5V$	$I_D = -4.1A$	2.5	3.5 7.5 (S \cup)	
C_{iss}	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = -25V$ $f = 1.0 \text{ MHz}$			500	
C_{oss}	Output Capacitance				300	
C_{rss}	Reverse Transfer Capacitance				100	
Q_g	Total Gate Charge	$V_{GS} = -15V$ $I_D = -15A$ $V_{DS} = 0.8V \text{ Max Rating}$			25 45	
Q_{gs}	Gate – Source Charge				13 23	
Q_{gd}	Gate – Drain (“Miller”) Charge				12 22	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -42V$ $I_D = -4.1A$ $Z_o = 50\Omega$			30 60	
t_r	Rise Time				70 140	
$t_{d(off)}$	Turn–Off Delay Time				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 -25 A	
I_{SM}	Pulse Source Current [(Body Diode) ²]					
V_{SD}	Diode Forward Voltage ¹	$V_{GS} = 0$	$I_S = 6.5A$	$T_J = 25^{\circ}C$	4	V
t_{rr}	Reverse Recovery Time	$I_F = -6.5A$	$T_J = 25^{\circ}C$		250	ns
Q_{rr}	Reverse Recovery Charge	$di_F/dt = 100 \text{ A}/\mu s$		1.8		μC
t_{on}	Forward Turn–On Time			negligible		—

*JEDEC Registered Value

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

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

3 $V_{DD} = 25V$ starting $T_J = 25^{\circ}C$, $L = 17.25mH$, $R_G = 25\Omega$, Peak $I_L = 6.5A$