

New Jersey Semi-Conductor Products, Inc.

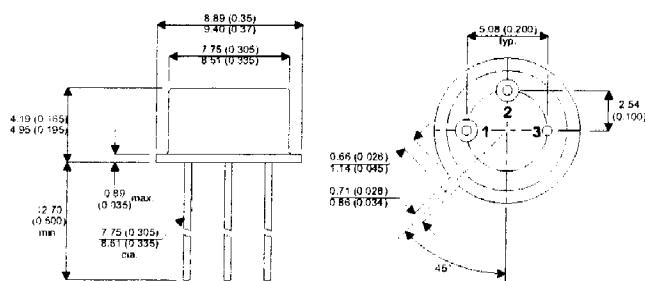
20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

2N6849

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
$I_{D(\text{cont})}$	- 6.5A
$R_{DS(\text{on})}$	0.30Ω

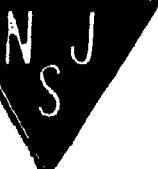
FEATURES

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

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

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

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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	
I_{DSS}	Zero Gate Voltage Drain Current*	$V_{DS} = \text{Max rating} \times 0.8$			-250	μA
		$V_{GS} = 0V$	$T_C = -125^\circ C$		-1000	
$V_{DS(on)}$	On-State Drain Voltage ¹	$V_{DS} \geq I_{D(on)} R_{DS(on)max.}$			-2.1	V
		$V_{GS} = -10V$	$I_D = -6.5A$			
g_{fs}	Forward Transconductance ¹	$V_{DS} = -5V$	$I_D = -4.1A$	2.5	3.5	$(S \cup)$
C_{iss}	Input Capacitance	$V_{GS} = 0V$	$V_{DS} = -25V$	500		pF
C_{oss}	Output Capacitance			300		
C_{rss}	Reverse Transfer Capacitance			100		
Q_g	Total Gate Charge			25	45	nC
Q_{gs}	Gate – Source Charge	$V_{GS} = -15V$	$I_D = -15A$	13	23	
Q_{gd}	Gate – Drain ("Miller") Charge	$V_{DS} = 0.8V$ Max Rating		12	22	
$t_{d(on)}$	Turn-On Delay Time			30	60	ns
t_r	Rise Time	$V_{DD} = -42V$	$I_D = -4.1A$	70	140	
$t_{d(off)}$	Turn-Off Delay Time	$Z_o = 50\Omega$		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	
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	$dI_F/dt = 100 A/\mu s$			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 $I_L = 6.5A$