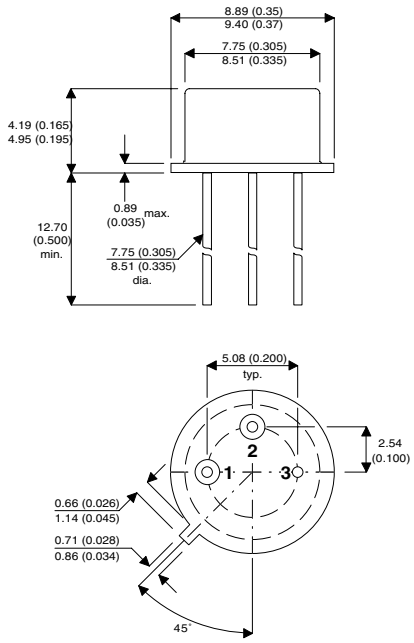
2N6660X

MECHANICAL DATA
Dimensions in mm (inches)



TO–39 METAL PACKAGE

Underside View

PIN 1 – Source	PIN 3 – Drain
PIN 2 – Gate	CASE – Drain

N–CHANNEL ENHANCEMENT MODE MOS TRANSISTOR

FEATURES

- **Switching Regulators**
- **Converters**
- **Motor Drivers**

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25°C unless otherwise stated)

V_{DS}	Drain – Source Voltage		60V
V_{GS}	Gate – Source Voltage		±40V
I_D	Continuous Drain Current	@ T_{CASE} = 25°C	±1.1A
I_D	Continuous Drain Current	@ T_{CASE} = 100°C	±0.8A
I_{DM}	Pulsed Drain Current *		±3A
P_D	Power Dissipation	@ T_{CASE} = 25°C	6.25W
P_D	Power Dissipation	@ T_{CASE} = 100°C	2.5W
T_j	Operating Junction Temperature Range		–55 to 150°C
T_{stg}	Storage Temperature Range		–55 to 150°C
T_L	Lead Temperature ($^1/_{16}$" from case for 10 sec.)		300°C

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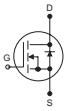
ELECTRICAL CHARACTERISTICS (T_{CASE} = 25°C unless otherwise stated)

	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
	STATIC CHARACTERISTICS					
BV_{DSS}	Drain – Source Breakdown Voltage	V_{GS} = 0V I_D = 10µA	60	100		V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} I_D = 1mA	0.8	1.5	2.2	V
I_{GSS}	Gate – Body Leakage Current	V_{GS} = ±15V		1	±100	nA
		V_{DS} = 0V T_{CASE} = 125°C		5	±500	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = Max. Ratings V_{GS} = 0V		1	10	µA
		V_{DS} =0.8VMax.Ratings V_{GS} = 0V T_{CASE} = 125°C		50	500	µA
$I_{D(on)*}$	On–State Drain Current	V_{DS} = ≥2$V_{DS(ON)}$ V_{GS} = 10V	1.5	1.7		A
$R_{DS(on)*}$	Drain – Source On Resistance	V_{GS} = 5V I_D = 0.3A		4.7	5	Ω
		V_{GS} = 10V I_D = 1A		2.7	3	Ω
		T_{CASE} = 125°C		3.9	4.2	Ω
$V_{DS(on)*}$	Drain – Source On Voltage	V_{GS} = 5V I_D = 0.3A		1.4	1.5	V
		V_{GS} = 10V I_D = 1A		2.7	3	V
	DYNAMIC CHARACTERISTICS					
g_{FS*}	Forward Transconductance	V_{DS} = 25V I_D = 0.5A	170	195		mS
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1MHz		35	50	pF
C_{oss}	Output Capacitance			33	40	pF
C_{rss}	Reverse Transfer Capacitance			2	10	pF
	SWITCHING CHARACTERISTICS					
t_{ON}	Turn–On Time	V_{DD} = 25V I_D = 1A		8	10	ns
t_{OFF}	Turn–Off Time	R_L = 23Ω R_G = 25Ω		8	10	ns
	BODY-DRAIN DIODE RATINGS AND CHARACTERISTICS					
I_S	Continuous Source Current (Body Diode)	Modified MOSPOWER Symbol Showing The Integral PN Juncion Rectifier 			-1.1	A
I_{SM}	Source Current[1] (Body Diode)				-3	A
V_{SD}	Diode Forward Voltage [1]	I_S = -1.1A V_{GS} = 0V T_{CASE} = 125°C			-0.9	V

1 Pulse Test: Pulse width ≤ 300 µs , Duty Cycle ≤ 2%

	Parameter	Min.	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (Free Air Operation)			170	C/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case			20	C/W

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