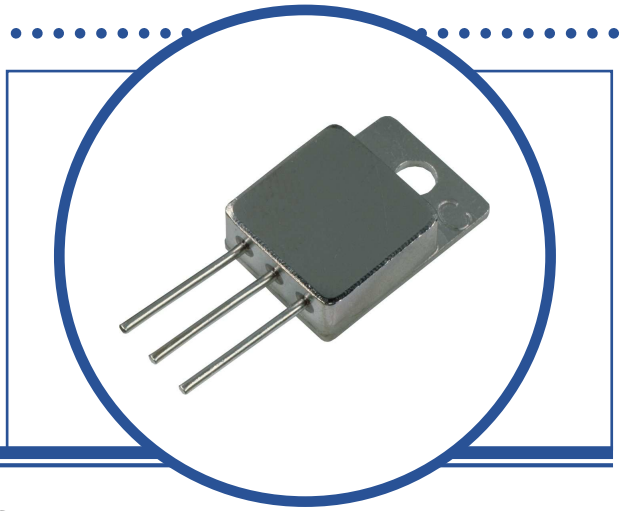
N-CHANNEL ENHANCEMENT-MODE POWER MOSFET

TT electronics
Semelab Limited

2N7077



- V_{DSS} = 400V, $I_{D(CONT)}$ = 15A, $R_{DS(on)}$ = 300mΩ
- Hermetic Isolated Metal TO-254AA Package
- Integral Body Diode
- High-Reliability Screening Options Available

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise stated)

V_{DS}	Drain – Source Voltage			400V
V_{GS}	Gate – Source Voltage			±20V
I_D	Continuous Drain Current	T_J = 150°C	T_C = 25°C	15A
I_D	Continuous Drain Current		T_C = 100°C	9.5A
I_{DM}	Pulsed Drain Current (1)			60A
P_D	Total Power Dissipation at		T_C = 25°C	150W
			Derate Above 25°C	1.2W/°C
T_J	Junction Temperature Range			-55 to +150°C
T_{stg}	Storage Temperature Range			-55 to +150°C

THERMAL PROPERTIES

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.83	°C/W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	50	

Notes
(1) Repetitive Rating: Pulse width limited by maximum junction temperature
(2) Pulse Width ≤ 300us, δ ≤ 2%

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions		Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0	I_D = 250µA	400			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}	I_D = 250µA	2		4	
I_{GSS}	Forward Gate-Source Leakage	V_{DS} = 0V	V_{GS} = ± 20			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 320V	V_{GS} = 0			25	µA
			T_J = 125°C			250	
$I_{D(on)}$ (2)	On-State Drain Current	V_{DS} = 10V	V_{GS} = 10V	15			A
$R_{DS(on)}$ (2)	Static Drain-Source On-State Resistance	V_{GS} = 10V	I_D = 9.5A			300	mΩ
			T_J = 125°C			660	
g_{fs} (2)	Forward Transconductance	V_{DS} = 15V	I_{DS} = 9.5A		14	24	S(℧)

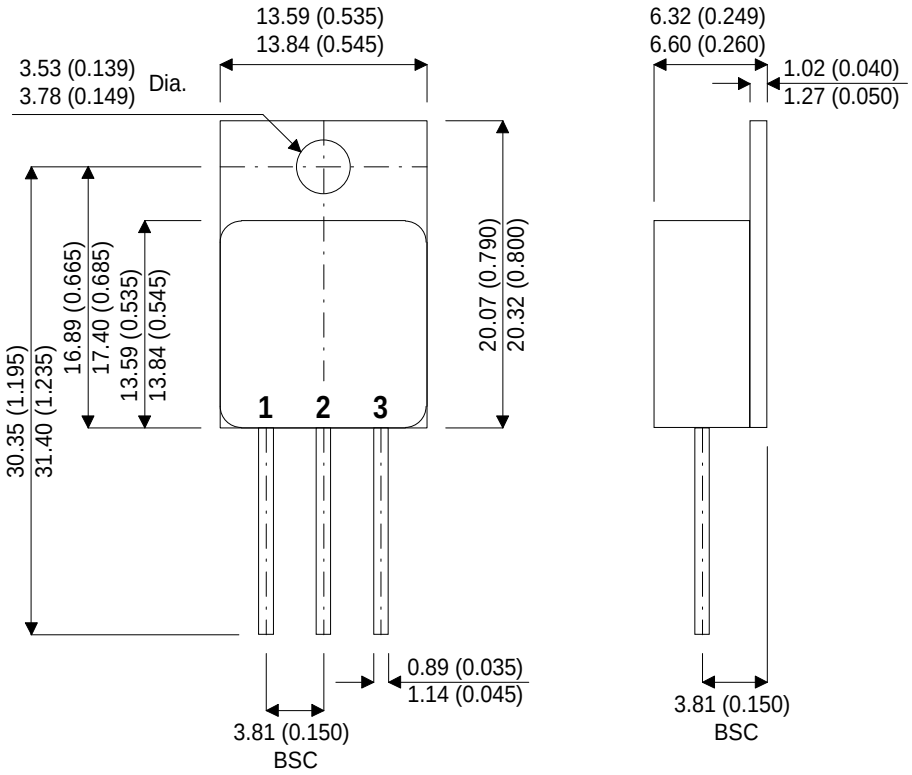
DYNAMIC CHARACTERISTICS

C_{iss}	Input Capacitance	V_{GS} = 0		2700		pF
C_{oss}	Output Capacitance	V_{DS} = 25V		450		
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHz		160		
Q_g	Total Gate Charge	V_{GS} = 10V		77		nC
Q_{gs}	Gate-Source Charge	I_D = 15A		14		
Q_{gd}	Gate-Drain Charge	V_{DS} = 200V		39		
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 100V		14	35	ns
t_r	Rise Time	I_D = 27.4A		30	60	
$t_{d(off)}$	Turn-Off Delay Time	V_{GS} = 10V		54	150	
t_f	Fall Time	R_G = 2.35Ω		15	75	

SOURCE-DRAIN DIODE CHARACTERISTICS

I_S	Continuous Source Current					15	A
I_{SM} (1)	Pulse Source Current					60	
V_{SD} (2)	Diode Forward Voltage	I_F = 15A	T_J = 25°C	0.85		1.7	V
t_{rr}	Reverse Recovery Time	I_F = 15A	Di/dt = 100 A/µs		350		ns
Q_{rr}	Forward Turn-On Time				2		µC

MECHANICAL DATA
Dimensions in mm (Inches)



TO-254AA
Isolated Metal Package

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