

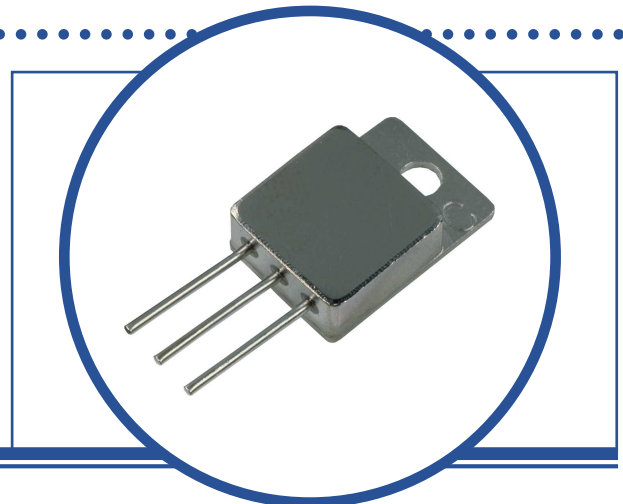
N-CHANNEL ENHANCEMENT-MODE POWER MOSFET



Semelab Limited

2N7077

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



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ C$ unless otherwise stated)

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

THERMAL PROPERTIES

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

Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
 (2) Pulse Width $\leq 300\mu s$, $\delta \leq 2\%$

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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
					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
					660	
g _{fs} ⁽²⁾	Forward Transconductance	V _{DS} = 15V I _{DS} = 9.5A		14	24	S(Ω)

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 I _D = 27.4A V _{GS} = 10V R _G = 2.35Ω		14	35	ns
t _r	Rise Time			30	60	
t _{d(off)}	Turn-Off Delay Time			54	150	
t _f	Fall Time			15	75	

SOURCE-DRAIN DIODE CHARACTERISTICS

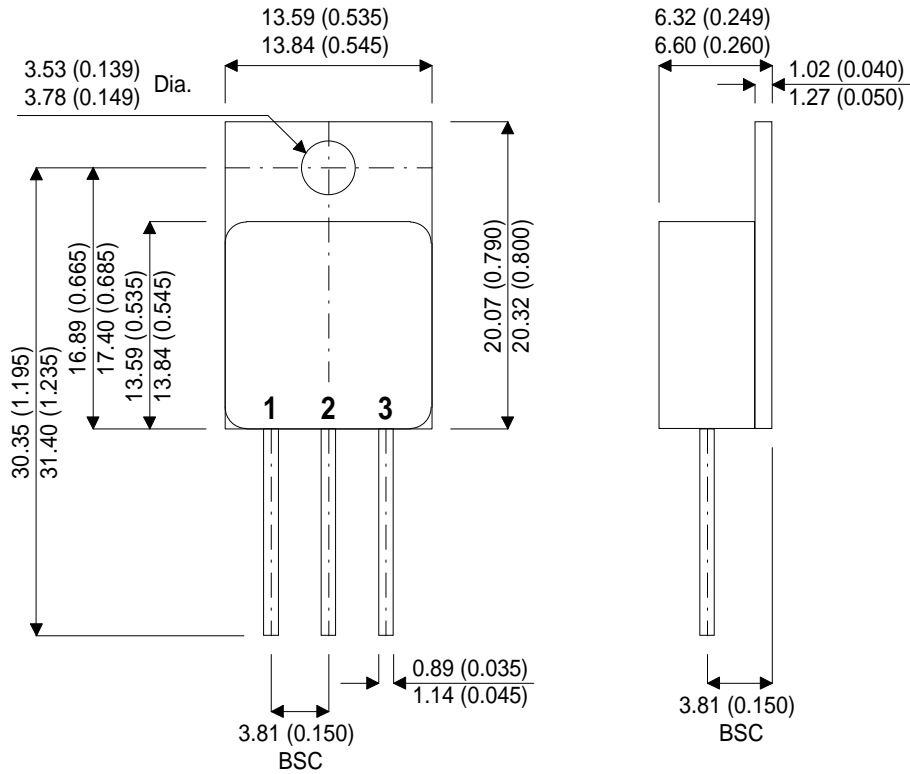
I _S	Continuous Source Current				15	A
I _{SM} ⁽¹⁾	Pulse Source Current				60	
V _{SD} ⁽²⁾	Diode Forward Voltage	I _F = 15A T _J = 25°C	0.85		1.7	V
t _{rr}	Reverse Recovery Time	I _F = 15A Di/dt = 100 A/μs		350		ns
Q _{rr}	Forward Turn-On Time				2	

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MECHANICAL DATA

Dimensions in mm (Inches)



TO-254AA

Isolated Metal Package

PIN 1 – Drain

PIN 2 – Source

PIN 3 - Gate