



PRODUCT SPECIFICATIONS

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TYPE: MTH15N40

CASE OUTLINE: TO-218

HIGH VOLTAGE POWER MOSFET N-CHANNEL

ABSOLUTE MAXIMUM RATING:

Drain – Source Voltage	V_{DSS}	400	Vdc
Drain – Gate Voltage	V_{DGR}	400	Vdc
Drain Current – Continuous	I_D	15	Adc
Drain Current – Pulsed	I_{DM}	75	Adc
Gate – Source Voltage	V_{GS}	± 20	Vdc
Power Dissipation	P_D	150	Watts
Inductive Current	I_L		Adc
Operating and Storage Temperature	T_J & T_{stg}	-65 to +150	°C
Lead Temperature From Case	T_L	275	°C

ELECTRICAL CHARACTERISTICS TA @ 25°C

Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	BV_{DSS}	$I_D = 0.25mA$ $V_{GS} = 0$	400			Vdc
Gate Threshold Voltage	$V_{GS(th)}$	$I_D = 1.0mA$ $V_{DS} = V_{GS}$ $I_D = 1.0mA$ $V_{DS} = V_{GS}$ $T_J = 100^\circ C$	2.0 1.5		4.5 4.0	Vdc
Gate – Body Leakage Current	I_{GSS}	$V_{GS} = 20V$ $V_{DS} = 0$			100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 400V$ $V_{GS} = 0$ $V_{DS} = 320V$ $V_{GS} = 0$ $T_J = 125^\circ C$			0.2 1.0	mA mA
On State Drain Current	$I_{D(on)}$					Adc
Drain Source On-Resistance	$r_{DS(on)}$	$I_D = 8.0A$ $V_{GS} = 10V$			0.3	Ohms
Forward Transconductance	g_{FS}	$I_D = 8.0A$ $V_{DS} = 10V$	5.0			mhos
Drain-Source On Voltage	$V_{DS(on)}$	$I_D = 15.0A$ $V_{GS} = 10V$ $I_D = 8.0A$ $V_{GS} = 10V$ $T_J = 100^\circ C$			4.5 3.5	Vdc
Drain-Source-On Voltage	$V_{DS(on)}$					Vdc
Input Capacitance	C_{iss}	$V_{DS} = 25V$ $V_{GS} = 0$ $f = 1.0MHz$			3000	pF
Output Capacitance	C_{oss}				500	pF
Reverse Transfer Capacitance	C_{rss}				200	pF



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Drain Source Diode Characteristics		Symbol	Min	Typ	Max	Units
Forward On Voltage	$I_S = 15.0A$ $V_{GS} = 0$ $I_S = 15.0A$	V_{SD}		1.3	1.6	Vdc
Reverse Recovery Time		t_{rr}		1200		ns
Reverse Recovery Charge		Q_{rr}				nC
Total Gate Charge	$I_D = 15.0A$ $V_{DS} = 320V$ $V_{GS} = 10V$	Q_g		110	160	nC
Gate – Source Charge		Q_{gs}		50		nC
Gate – Drain Charge		Q_{gd}		60		nC

Switching Characteristics		Symbol	Min	Typ	Max	Units
Turn-On Time		t_{on}				
Turn-Off Time		t_{off}				
Delay Time (Turn On)	$I_D = 8.0A$ $V_{DD} = 25V$ $R_{gen} = 50\Omega$	$t_{d(on)}$			60	ns
Rise Time		t_r			180	ns
Delay Time (Turn Off)		$t_{d(off)}$			450	ns
Fall Time		t_f			180	ns

Thermal Characteristics		Symbol			Units
Junction To Case		$R_{\theta JC}$	0.83		$^{\circ}C/W$
Junction To Ambient		$R_{\theta JA}$	30		$^{\circ}C/W$
Internal Package Inductance		Symbol	Typ	Max	Units
Internal Drain Inductance		L_d	4.0		nH
Internal Source Inductance		L_s	10.0		nH