



TMG80N10D

N-Channel Enhancement Mosfet

General Description

- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

Applications

- Load switch
- PWM

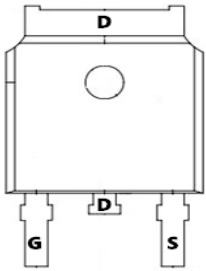
General Features

$V_{DS} = 100V$ $I_D = 80A$

$R_{DS(ON)} = 7.2m\Omega$ (typ.) @ $V_{GS} = 10V$

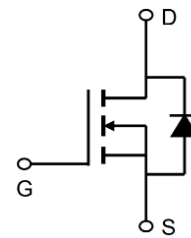
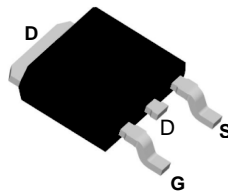
100% UIS Tested

100% R_g Tested



Marking G80N10

D:TO-252-3L



Maximum Ratings at $T_c=25^\circ C$ unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continue Drain Current	I_D	80	A
Pulsed Drain Current (Note1)	I_{DM}	320	A
Power Dissipation	P_D	110	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	132	mJ
Operating Temperature Range	T_J	150	$^\circ C$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.1	$^\circ C/W$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	$^\circ C/W$

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle



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Electrical Characteristics at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	BV_{DSS}	100	-	-	V
Drain-Source Leakage Current	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance	$V_{GS}=10\text{V}, I_D=30\text{A}$	$R_{DS(on)}$	-	7.2	8.7	m Ω
Forward Transconductance	$V_{DS} = 5\text{ V}, I_D = 30\text{ A}$	gfs	-	50	-	S
Input Capacitance	$V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$	C_{iss}	-	2000	-	pF
Output Capacitance		C_{oss}	-	511	-	pF
Reverse Transfer Capacitance		C_{rss}	-	12	-	pF
Turn-on Delay Time(Note2)	$V_{DD}=50\text{V}, V_{GS}=10\text{V}, R_G=3\ \Omega$ $I_D=30\text{A}$	$t_{d(ON)}$	-	17	-	ns
Rise Time(Note2)		t_r	-	20	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	60	-	ns
Fall Time(Note2)		t_f	-	18	-	ns
Total Gate Charge(Note2)	$V_{DS}=50\text{V}, V_{GS}=10\text{V},$ $I_D=30\text{A}$	Q_G	-	10	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	14	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	28	-	nC

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

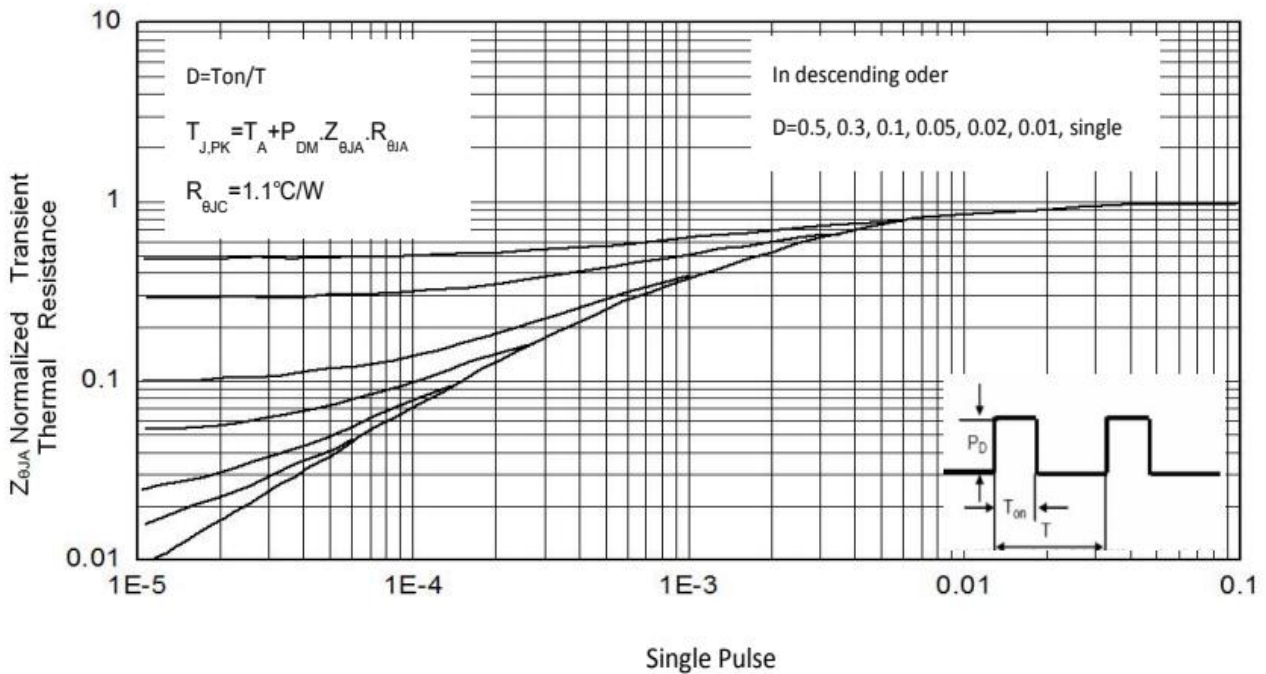
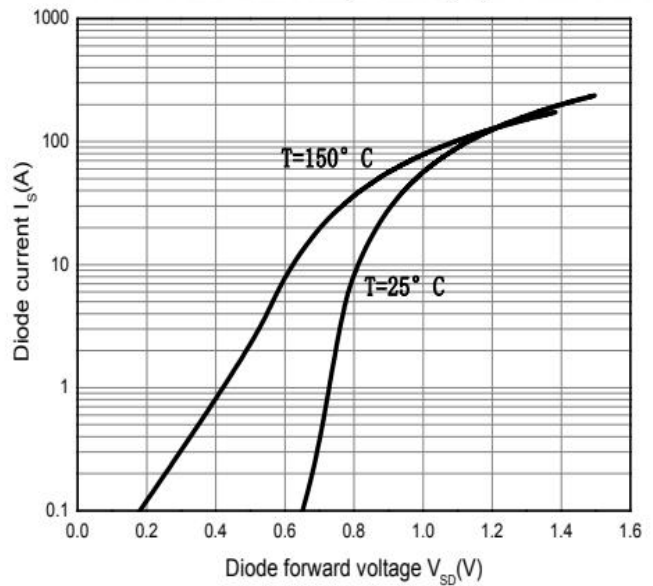
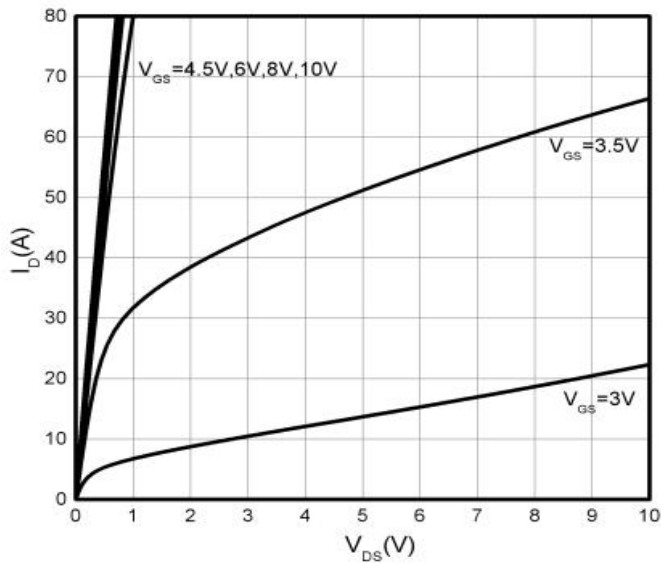
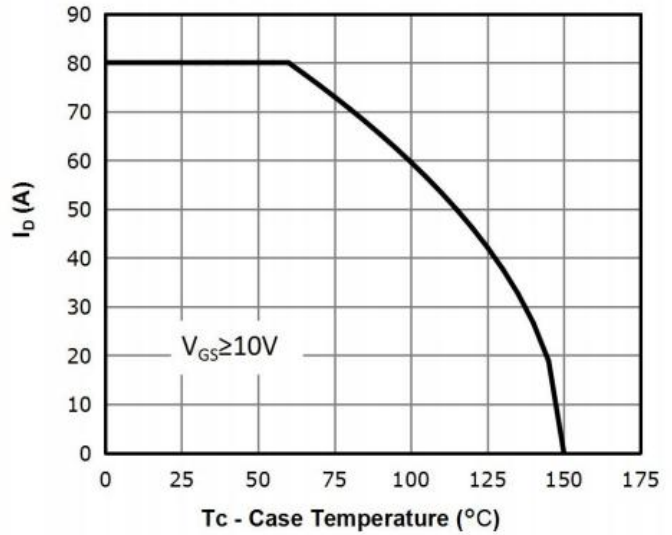
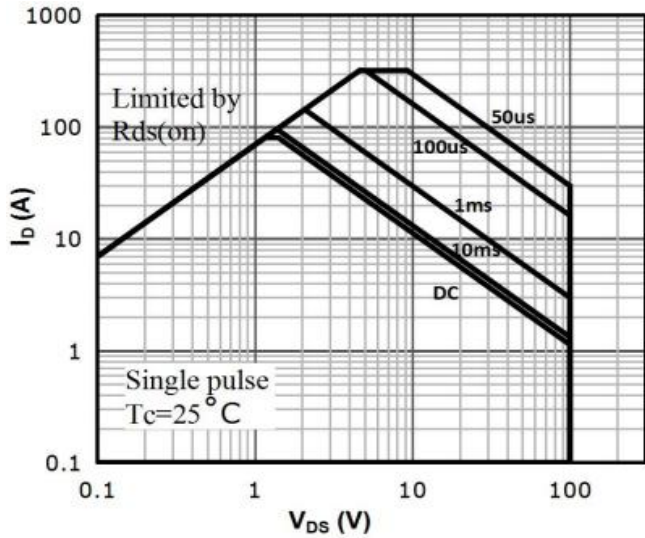
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	80	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	320	A
Drain-Source Diode Forward Voltage	$V_{GS}=0\text{V}, I_S=30\text{A}, T_J=25^\circ\text{C}$	V_{SD}	-	0.85	-	V

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

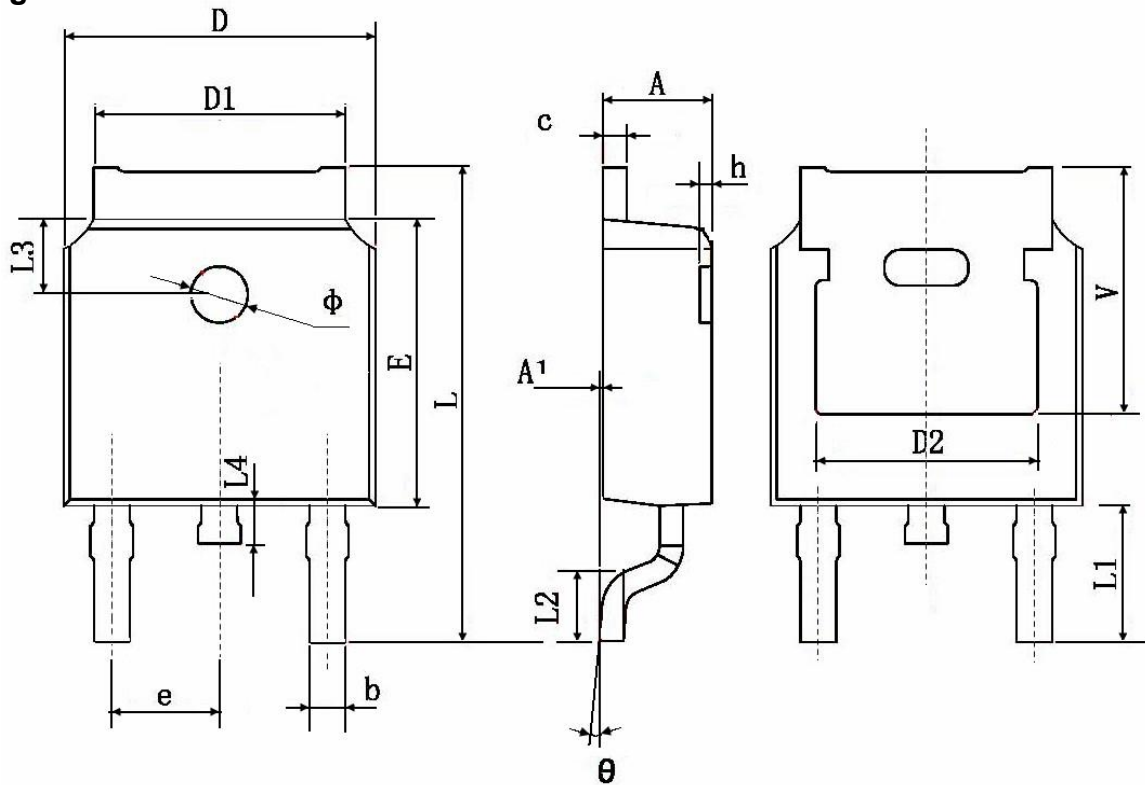
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RATINGS AND CHARACTERISTIC CURVES



Package Information: TO-252-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
phi	1.100	1.300	0.043	0.051
theta	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	