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台舟电子

MTD6N20ET4G-TP

N-Channel MOSFET 200V, 6.0A, 0.65Ω

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Features

- V_{DS} = 200V
- I_D = 6.0A
- $R_{DS(ON)}$ ≤ 0.65Ω @V_{GS} = 10V

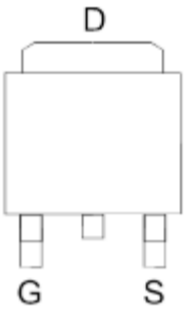
Application

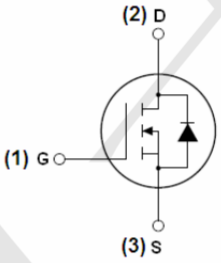
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package and Pin Configuration

(TO-252-3L)

Top View





Marking:



Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	200	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	6.0	A
	T_C=100°C		3.5	A
Pulsed Drain Current(1)		I_{DM}	20	A
Power Dissipation	T_C=25°C	P_D	38.4	W
	Derate above 25 °C		0.31	W/°C
Peak Diode Recovery dv/dt(3)		dv/dt	4.5	V/ns
Repetitive Pulse Avalanche Energy(1)		E_{AR}	3.84	mJ
Avalanche current(1)		I_{AR}	5.0	A
Single Pulse Avalanche Energy(4)		E_{AS}	62.5	mJ
Junction and Storage Temperature Range		T_J, T_{stg}	-55~150	°C

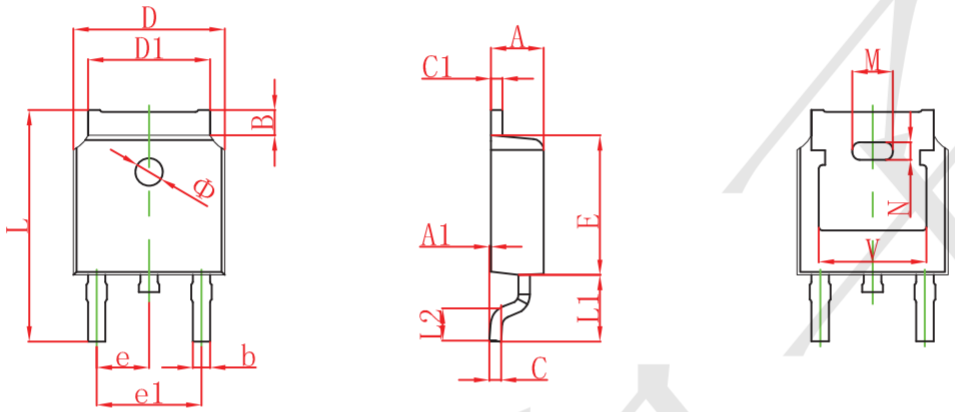
Thermal Characteristics

Characteristics	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Ambient(1)	$R_{\theta JA}$	110	°C/W
Thermal Resistance, Junction-to-Case(1)	$R_{\theta JC}$	3.25	

Electrical Characteristics (T_A=25℃unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 250μA, V_{GS} = 0V	200	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0	3.0	4.0	V
Drain Cut-Off Current	I_{DSS}	V_{DS} = 160V, V_{GS} = 0V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	100	nA
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 1.0A	-	0.5	0.69	Ω
Forward Transconductance	g_{fs}	V_{DS} = 30V, I_D = 2.5A	-	2.7	-	S
Dynamic Characteristics						
Total Gate Charge	Q_g	V_{DS} = 200V, I_D = 7A, V_{GS} = 10V	-	5.1	-	nC
Gate-Source Charge	Q_{gs}		-	1.5	-	
Gate-Drain Charge	Q_{gd}		-	2.0	-	
Input Capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz	-	182	-	pF
Reverse Transfer Capacitance	C_{rss}		-	5.6	-	
Output Capacitance	C_{oss}		-	46.9	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = 10V, V_{DS} = 100V, I_D = 7A, R_G = 25Ω	-	6.3	-	ns
Rise Time	t_r		-	23	-	
Turn-Off Delay Time	$t_{d(off)}$		-	10.7	-	
Fall Time	t_f		-	19.5	-	
Drain-Source Body Diode Characteristics						
Maximum Continuous Drain to Source Diode Forward Current	I_S		-	6.0	-	A
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 7.0A, V_{GS} = 0V	-	-	1.4	V
Body Diode Reverse Recovery Time	t_{rr}	I_F = 7.0A, di/dt = 100A/μs	-	88	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	0.25	-	μC

TO252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778REF.		0.070REF.	
N	0.762REF.		0.018REF.	
L	9.800	10.400	0.386	0.409
L1	2.9REF.		0.114REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051