

**Features**

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

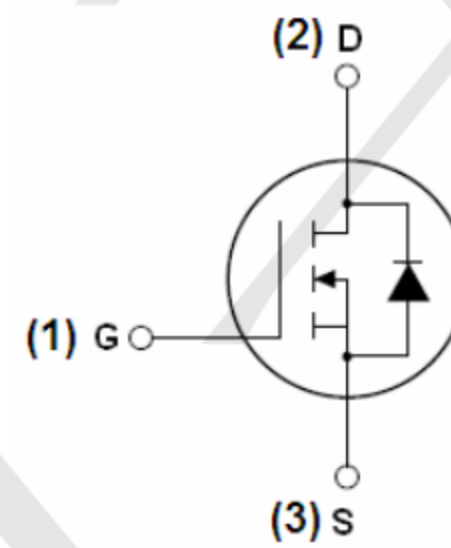
**Application**

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

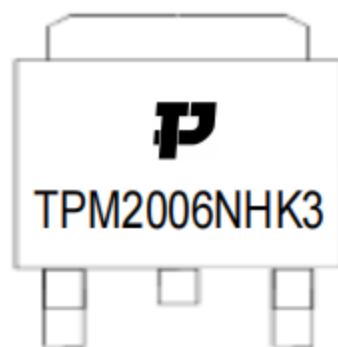
**Package and Pin Configuration**

(TO-252-3L)

Top View



**Marking:**



**Absolute Maximum Ratings ( $T_A=25^\circ C$  unless otherwise noted)**

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DSS}$	200	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$T_C=25^\circ C$	$I_D$	6.0	A
	$T_C=100^\circ C$		3.5	A
Pulsed Drain Current <sup>(1)</sup>		$I_{DM}$	20	A
Power Dissipation	$T_C=25^\circ C$	$P_D$	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 <sup>(1)</sup>		$E_{AR}$	3.84	mJ
Avalanche current <sup>(1)</sup>		$I_{AR}$	5.0	A
Single Pulse Avalanche Energy <sup>(4)</sup>		$E_{AS}$	62.5	mJ
Junction and Storage Temperature Range		$T_J, T_{stg}$	-55~150	°C

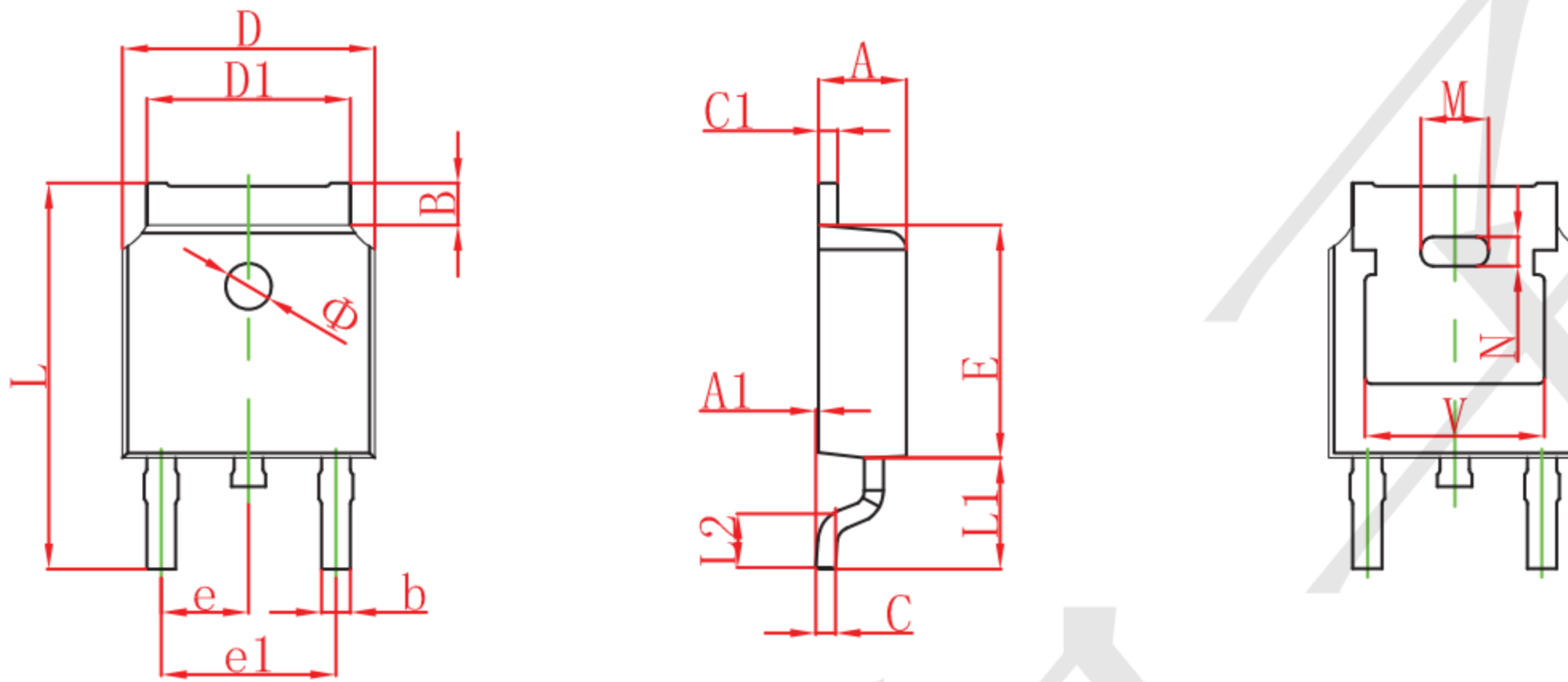
**Thermal Characteristics**

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

**Electrical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

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

**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