
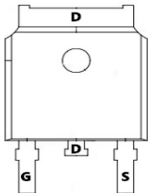
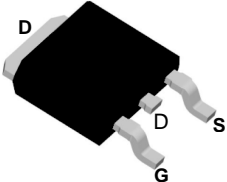
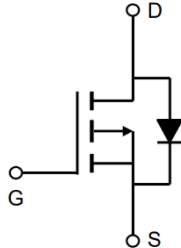


TM80P06D

P -Channel Enhancement Mosfet

<p>General Description</p> <ul style="list-style-type: none"> • Low $R_{DS(ON)}$ • RoHS and Halogen-Free Compliant <p>Applications</p> <ul style="list-style-type: none"> • Load switch • PWM 	<p>General Features</p> <p>$V_{DS} = -60V$ $I_D = -80A$</p> <p>$R_{DS(ON)} = 12m\Omega$ (typ.) @ $V_{GS} = -10V$</p> <p>100% UIS Tested 100% R_g Tested</p> 
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D:TO-252-3L

Marking: 80P06

Absolute Maximum Ratings: ($T_C = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	-80	A
	Continuous Drain Current- $T_C = 100^\circ C$	-52	
I_{DM}	Pulsed Drain Current ¹	-290	
P_D	Power Dissipation	107	W
E_{AS}	Single pulse avalanche energy ²	484	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.4	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu\text{A}$	-60		---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=-60V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	-1	-1.8	2.5	V
$R_{DS(on)}$	Drain-Source On Resistance	$V_{GS}=-10V, I_D=-20A$	---	12	14	$\text{m}\Omega$
		$V_{GS}=-4.5V, I_D=-15A$	---	15	18.6	$\text{m}\Omega$
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1\text{MHz}$	---	5669	---	μF
C_{oss}	Output Capacitance		---	289	--	
C_{rss}	Reverse Transfer Capacitance		---	209	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=-30V,$ $R_{ENG}=3\ \Omega, V_{GS}=-10V$	---	25	---	ns
t_r	Rise Time		---	20	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	137	---	ns
t_f	Fall Time		---	29	---	ns
Q_g	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-30V,$ $I_D=-20A$	---	139	---	nc
Q_{gs}	Gate-Source Charge		---	18	---	nc
Q_{gd}	Gate-Drain "Miller" Charge		---	27	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V, I_{SD}=-20A$	---	---	1.2	V
I_S	Continuous Drain Current	$V_D=V_G=0V$	---	---	-80	A
I_{SM}	Pulsed Drain Current		---	---	-240	A
T_{rr}	Reverse Recovery Time	$I_F=20A, T_J=25^\circ\text{C}$	---	56	---	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu\text{s}$	---	63	---	nc

Notes :

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2.EAS condition: $T_J=25^\circ\text{C}, V_{DD}=40V, V_G=-10V, R_G=25\Omega, L=0.5\text{mH}$.
- 3.Repetitive Rating: Pulse width limited by maximum junction temperature.



Typical Characteristics: (Tc=25°C unless otherwise noted)

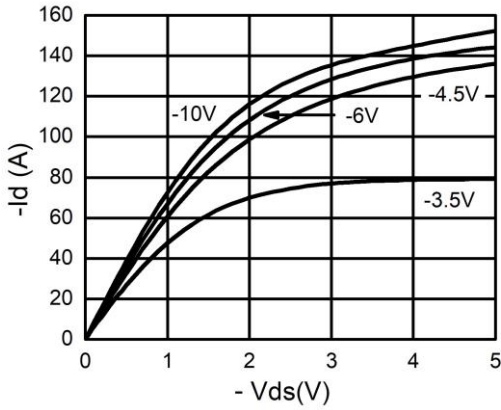


Figure 1. Output Characteristics

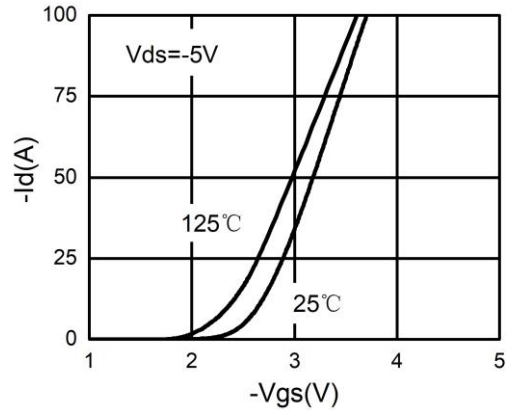


Figure 2. Transfer Characteristics

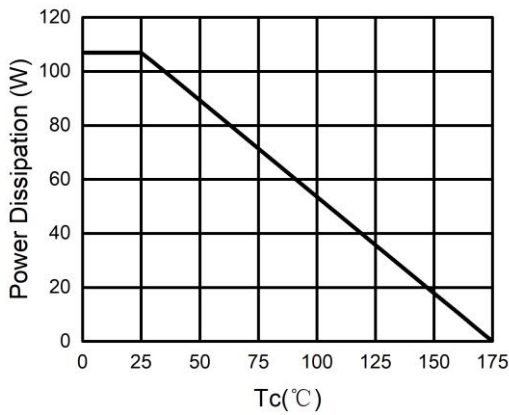


Figure 3. Power Dissipation

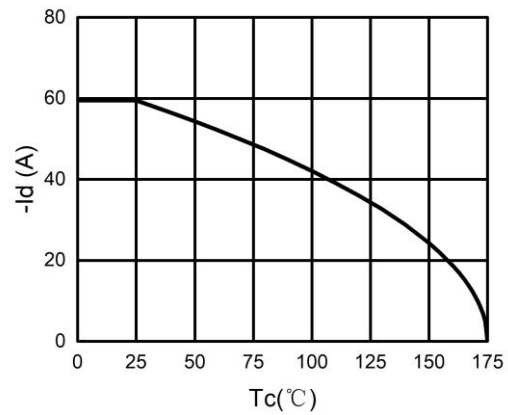


Figure 4. Drain Current

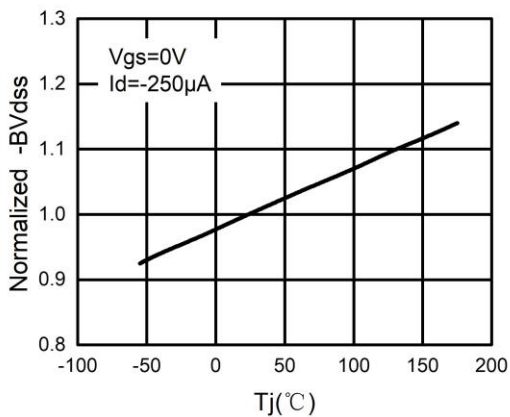


Figure 5. BV_{DSS} vs Junction Temperature

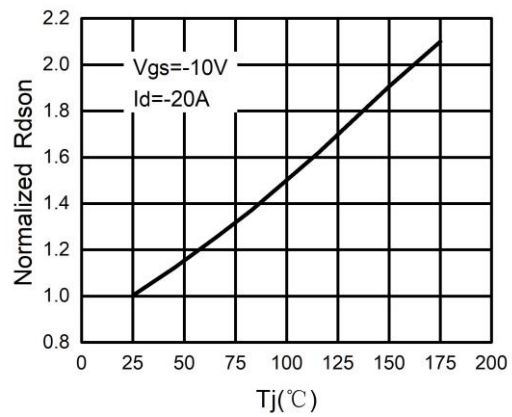


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

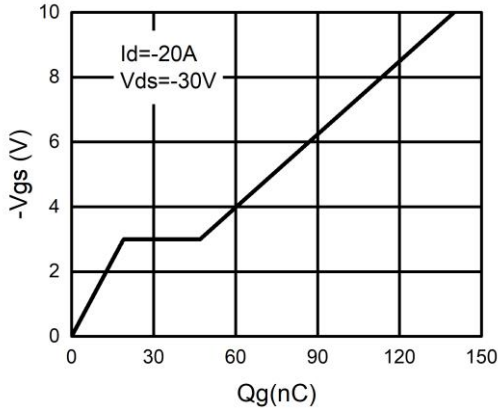


Figure 7. Gate Charge Waveforms

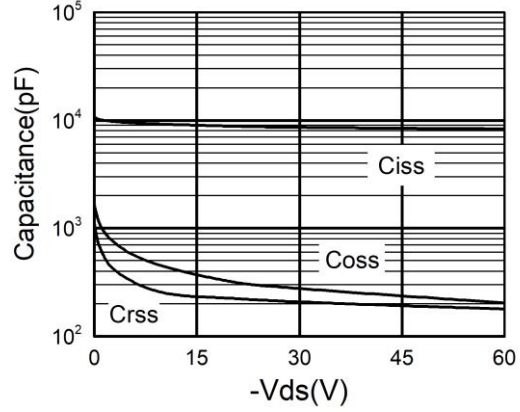


Figure 8. Capacitance

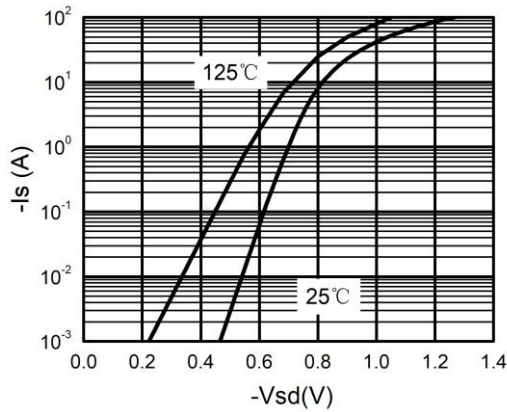


Figure 9. Body-Diode Characteristics

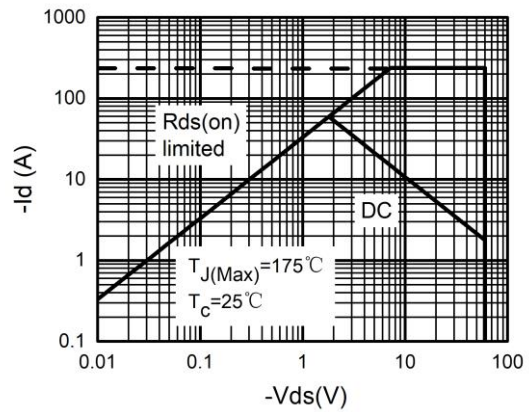
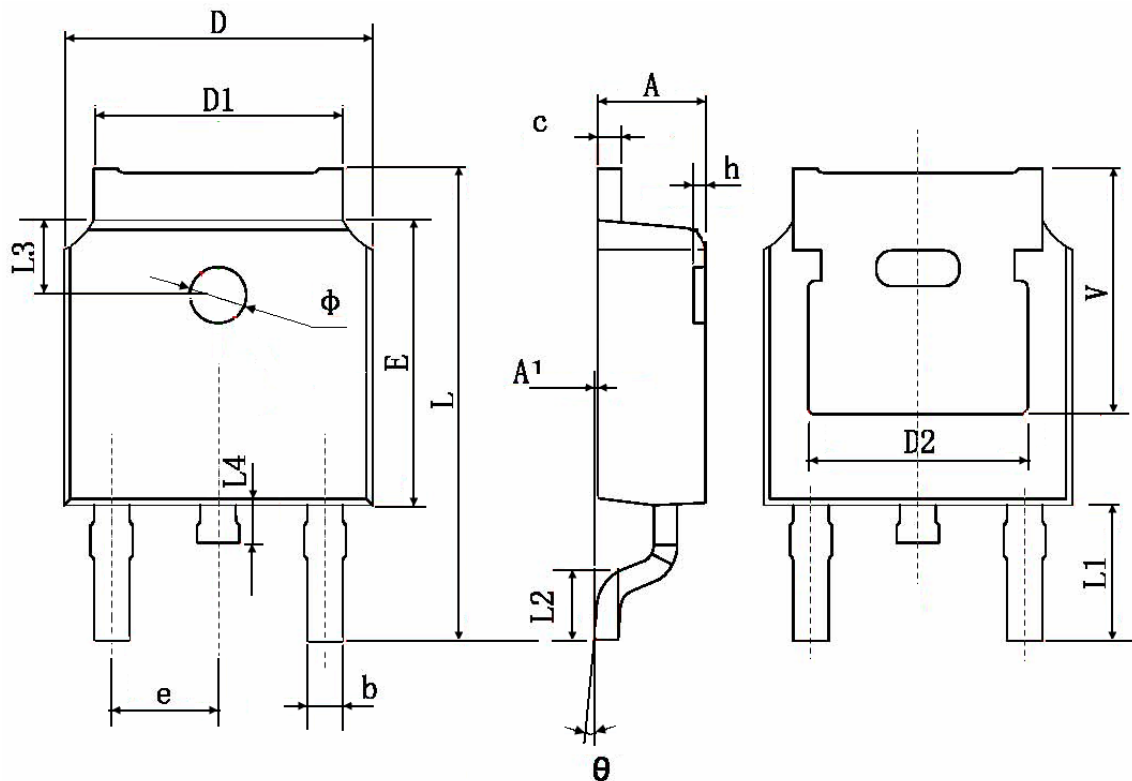


Figure 10. Maximum Safe Operating Area

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.	