TECH PUBLIC
—台舟电子—

TPB60PB3S8

Dual P-Channel Enhancement Mode MOSFET

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GENERAL FEATURES

- V_{DS} = -60V I_D = -3.8A
- $R_{DS(ON)}$ <98mΩ @ V_{GS}= -10 V
- $R_{DS(ON)}$ < 145mΩ @ V_{GS}= -4.5V

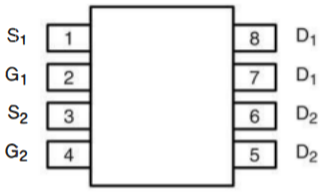
Application

- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

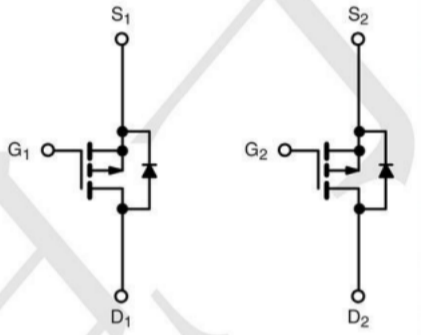
Package and Pin Configuration



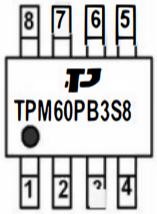
SOP-8 top view



Circuit diagram



Marking:



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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	-60	V
Continuous Drain Current		I_D	-3.8	A
Pulsed Drain Current	(note1)	I_{DM}	-16	A
Gate-Source Voltage		V_{GSS}	±20	V
Single Pulse Avalanche Energy	(note2)	E_{AS}	36	mJ
Avalanche Current		I_{As}	-12	A
Power Dissipation (T_C = 25°C)	(note3)	P_D	2.3	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 To 150	C

Thermal Data

Symbol	Parameter		Value	Unit
Rthj-a	Thermal Resistance Junction-ambient[3]	Max.	40	℃/W

Electrical Characteristics (Tj=25℃unless otherwise noted)

Specifications T_J = 25°C, unless otherwise noted						
Parameter	**Symbol**	**Test Conditions**	**Value**			**Unit**
			Min.	**Typ.**	**Max.**	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -60V, V_{GS} = 0V, T_J = 25°C	--	--	-1	μA
		V_{DS} = -60V, V_{GS} = 0V, T_J = 150°C	--	--	-100	
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.0	-1.7	-3.0	V
Drain-Source On-Resistance (Note3)	$R_{DS(on)}$	V_{GS} = -10V, I_D = -4A	--	90	98	mΩ
		V_{GS} = -4.5V, I_D = -3A	--	100	145	mΩ
Dynamic						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -30V, f = 1.0MHz	--	976	--	pF
Output Capacitance	C_{oss}		--	70	--	
Reverse Transfer Capacitance	C_{rss}		--	30	--	
Total Gate Charge	Q_g	V_{DD} = -30V, I_D = -4A, V_{GS} = -10V	--	24	--	nC
Gate-Source Charge	Q_{gs}		--	2.2	--	
Gate-Drain Charge	Q_{gd}		--	3.6	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -30V, I_D = -4A, R_G = 2.5Ω	--	10	--	ns
Turn-on Rise Time	t_r		--	5	--	
Turn-off Delay Time	$t_{d(off)}$		--	35	--	
Turn-off Fall Time	t_f		--	9	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25°C	--	--	-3.8	A
Pulsed Diode Forward Current	I_{SM}		--	--	-16	
Body Diode Voltage	V_{SD}	T_J = 25°C, I_{SD} = -4A, V_{GS} = 0V	--	--	-1.2	V
Reverse Recovery Time	t_{rr}	I_F = -4A, di_F/dt = 100A/μs	--	36	--	ns
Reverse Recovery Charge	Q_{rr}		--	38	--	nC

Typical Electrical and Thermal Characteristics

Figure 1. Output Characteristics

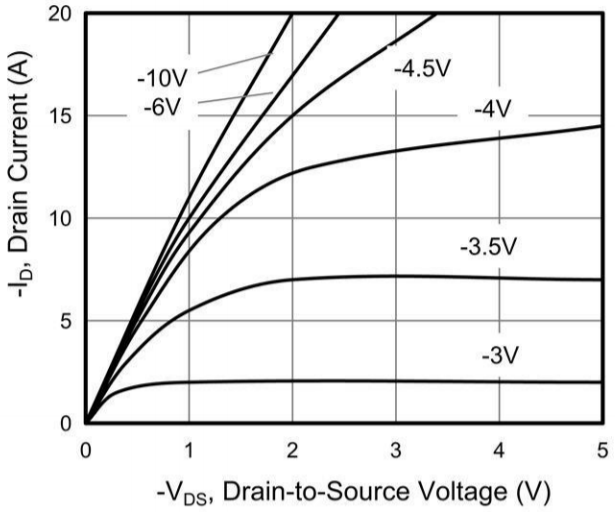


Figure 2. Transfer Characteristics

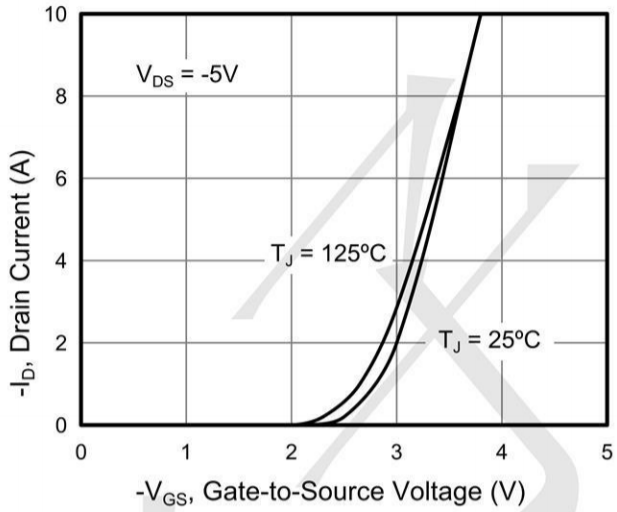


Figure 3. On-Resistance vs. Drain Current

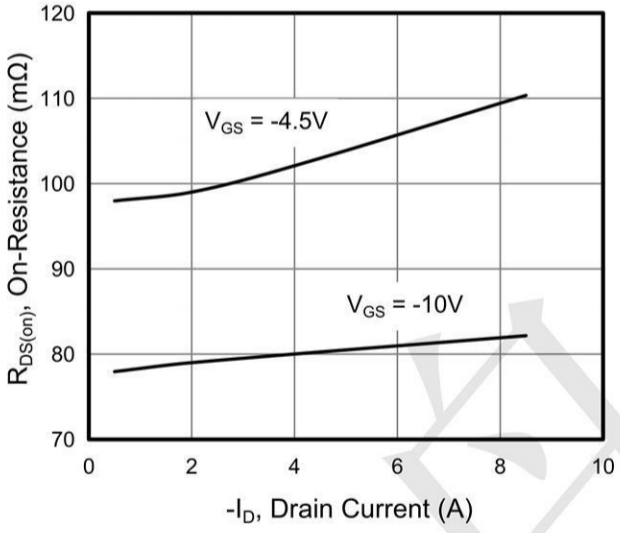


Figure 4. On-Resistance vs. Junction Temperature

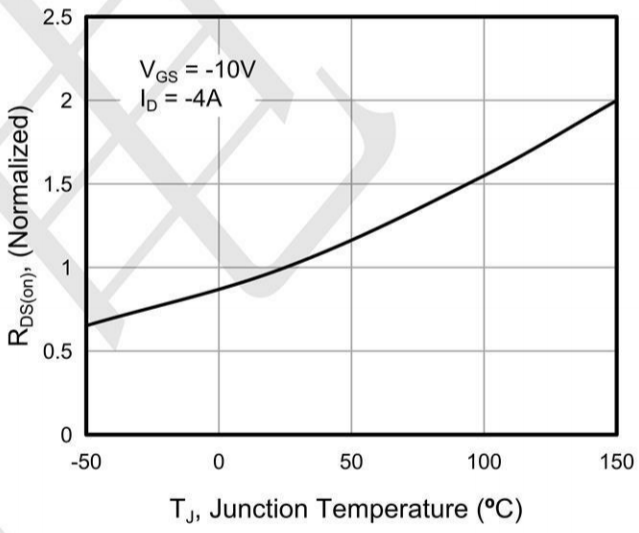


Figure 5. Threshold Voltage vs. Junction Temperature

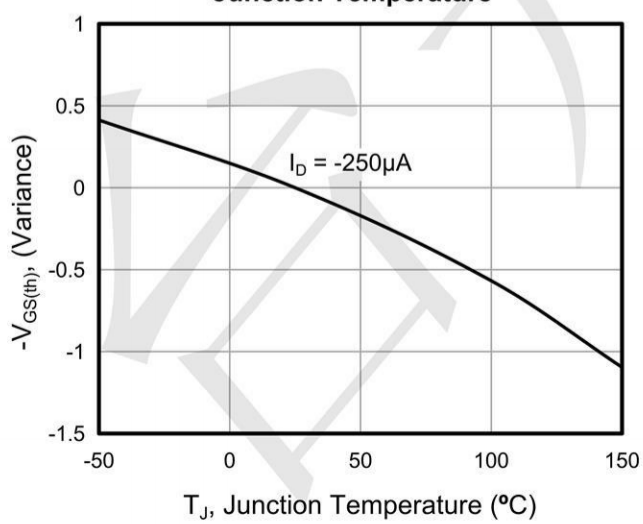


Figure 6. Body Diode Forward Voltage

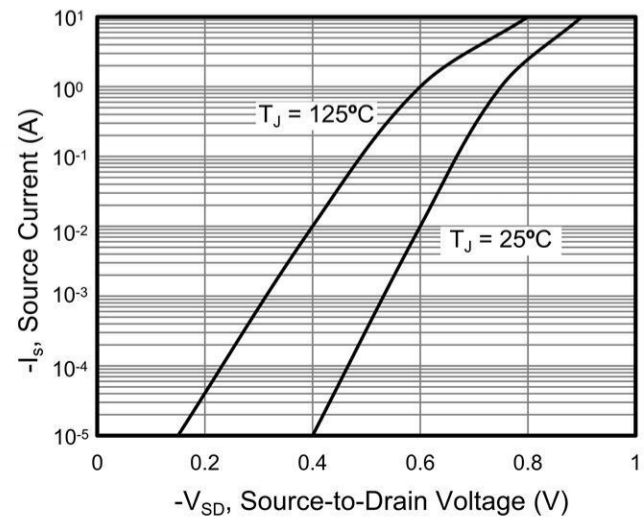


Figure 7. Capacitance

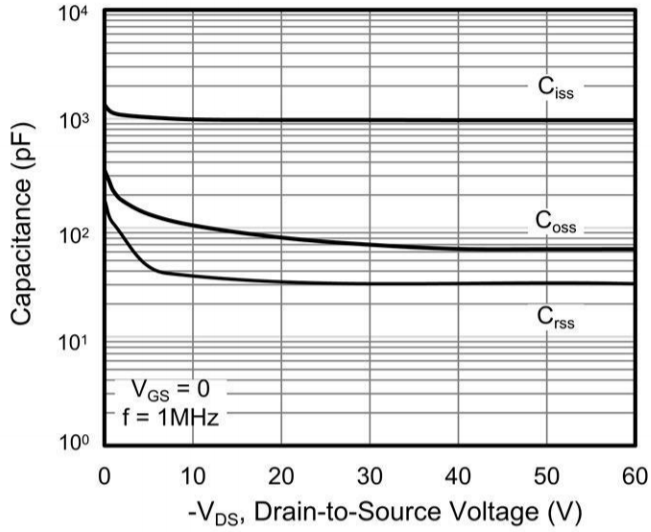


Figure 8. Gate Charge

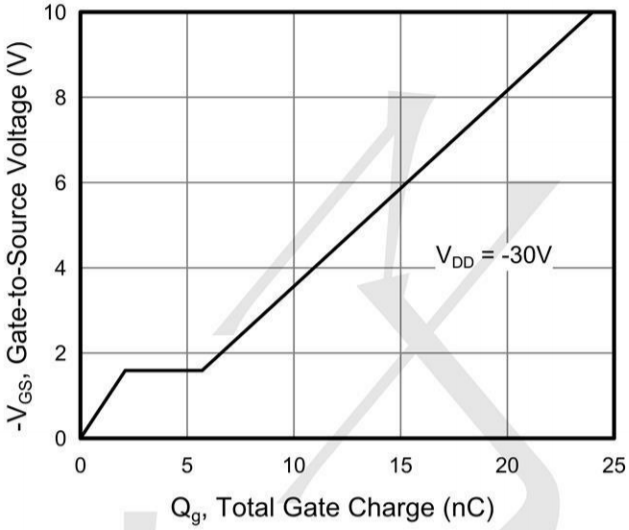


Figure 9. Transient Thermal Impedance

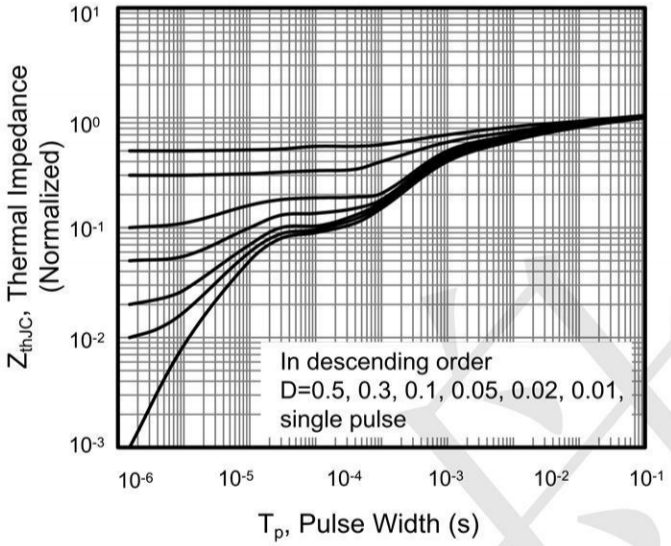
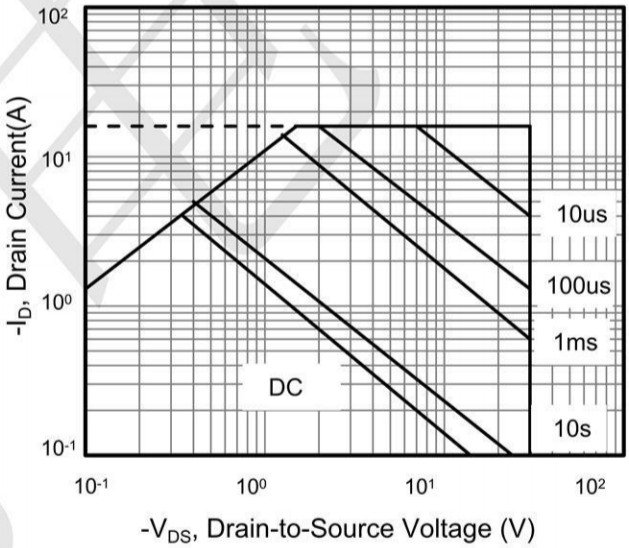
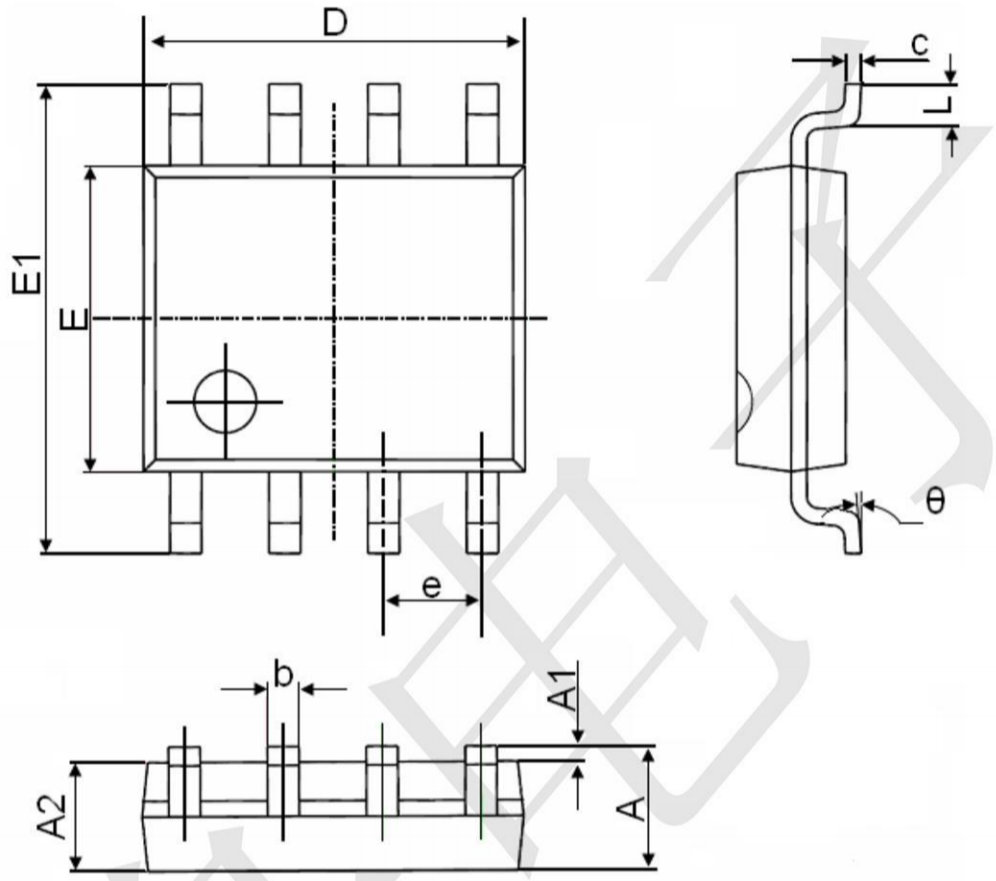


Figure 10. Safe Operating Area



SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°