

Product Summary

$V_{(BR)DS}$	$R_{DS(ON)}$ TYP	Package	I_D $T_A = +25^\circ C$
-30V	23m Ω @ $V_{GS} = -10V$	SOP-8	-6.0 A
	30m Ω @ $V_{GS} = -4.5V$		-4.7A

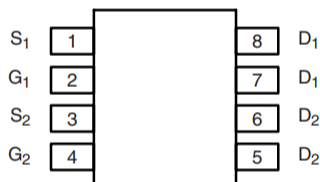
Application

- DC-DC Converters.
- Load Switch.
- Power Management.

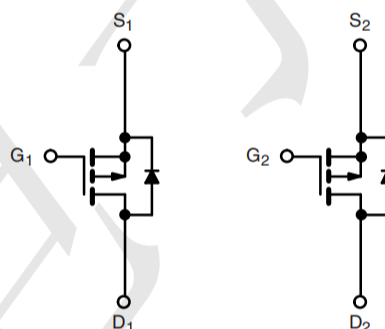
Package and Pin Configuration



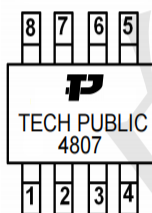
SOP-8 top view



Circuit diagram



Marking:



Maximum Ratings (@ $T_A = +25^\circ C$, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V_{GSS}	± 20	V
Continuous Drain Current (Note 5) $V_{GS} = 10V$	Steady State	$T_A = +25^\circ C$ $T_A = +70^\circ C$	I_D	-6 -4.7	A
	t<10s	$T_A = +25^\circ C$ $T_A = +70^\circ C$	I_D	-7.4 -5.8	A
Maximum Body Diode Forward Current (Note 6)			I_S	-2.5	A
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)			I_{DM}	-30	A

Thermal Characteristics

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	$T_A = +25^{\circ}\text{C}$	P_D	1.3	W
	$T_A = +70^{\circ}\text{C}$		0.8	
Thermal Resistance, Junction to Ambient (Note 5)	Steady state	$R_{\theta JA}$	102	$^{\circ}\text{C/W}$
	$t < 10\text{s}$		61	
Total Power Dissipation (Note 6)	$T_A = +25^{\circ}\text{C}$	P_D	1.7	W
	$T_A = +70^{\circ}\text{C}$		1.1	
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	$R_{\theta JA}$	75	$^{\circ}\text{C/W}$
	$t < 10\text{s}$		50	
Thermal Resistance, Junction to Case (Note 6)		$R_{\theta JC}$	14.5	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics (@ $T_A = +25^{\circ}\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	—	—	V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	μA	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	-1	—	-3	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	23	28	$\text{m}\Omega$	$V_{GS} = -10\text{V}, I_D = -7\text{A}$
		—	30	38		$V_{GS} = -4.5\text{V}, I_D = -5.5\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	—	11	—	S	$V_{DS} = -5\text{V}, I_D = -7\text{A}$
Diode Forward Voltage	V_{SD}	—	0.7	1.2	V	$V_{GS} = 0\text{V}, I_S = -2.1\text{A}$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	1241	—	pF	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	147	—		
Reverse Transfer Capacitance	C_{rss}	—	110	—		
Gate Resistance	R_G	—	15	—	Ω	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Total Gate Charge ($V_{GS} = -4.5\text{V}$)	Q_g	—	22	—	nC	$V_{DS} = -15\text{V}, I_D = -7\text{A}$
Total Gate Charge ($V_{GS} = -10\text{V}$)	Q_g	—	10.9	—		
Gate-Source Charge	Q_{gs}	—	3.5	—		
Gate-Drain Charge	Q_{gd}	—	4.7	—		
Turn-On Delay Time	$t_{D(on)}$	—	9.7	—	nS	$V_{GS} = -10\text{V}, V_{DD} = -15\text{V}, R_{GEN} = 6\Omega,$ $I_D = -7\text{A}$
Turn-On Rise Time	t_r	—	17.1	—		
Turn-Off Delay Time	$t_{D(off)}$	—	60.5	—		
Turn-Off Fall Time	t_f	—	40.4	—		

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

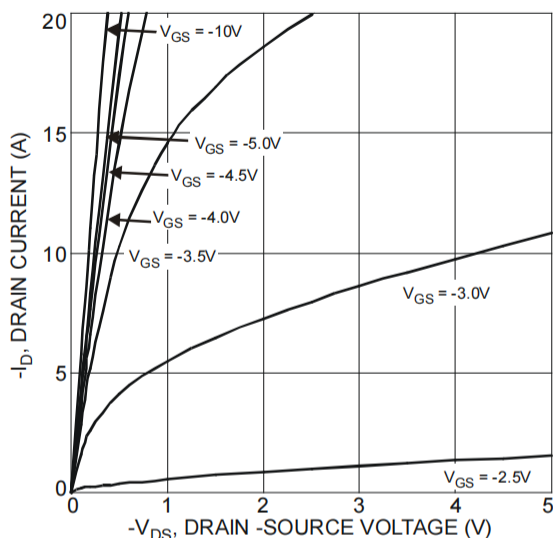


Figure 1 Typical Output Characteristics

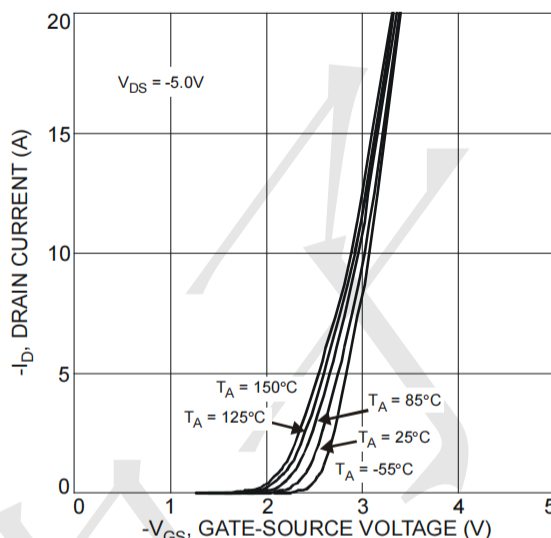


Figure 2 Typical Transfer Characteristics

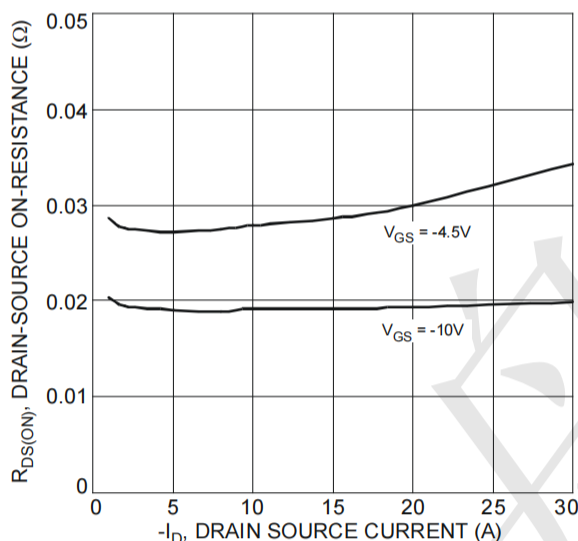


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

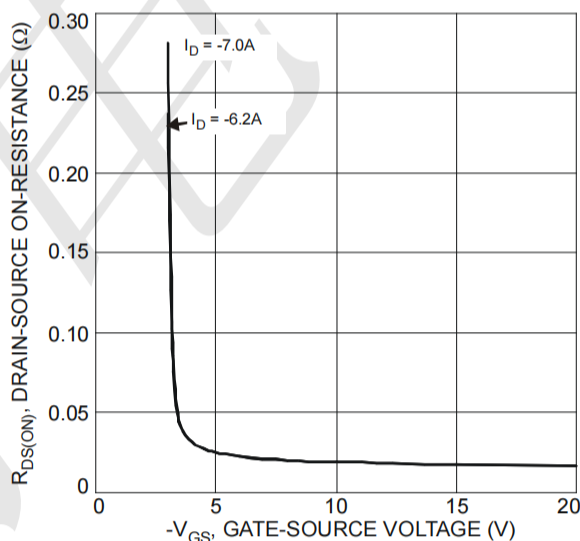


Figure 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

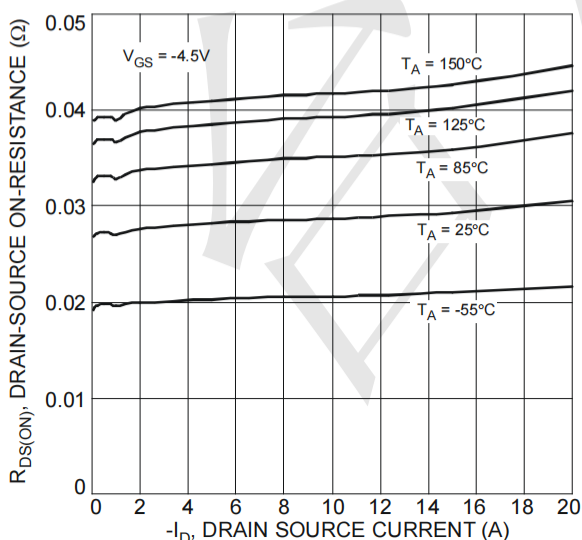


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

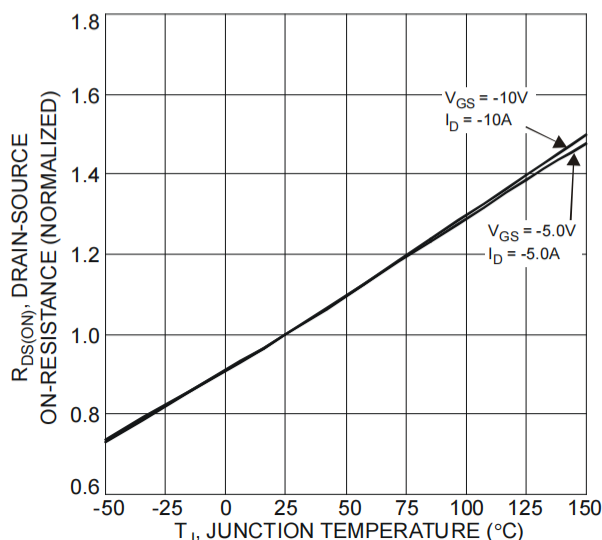


Figure 6 On-Resistance Variation with Temperature

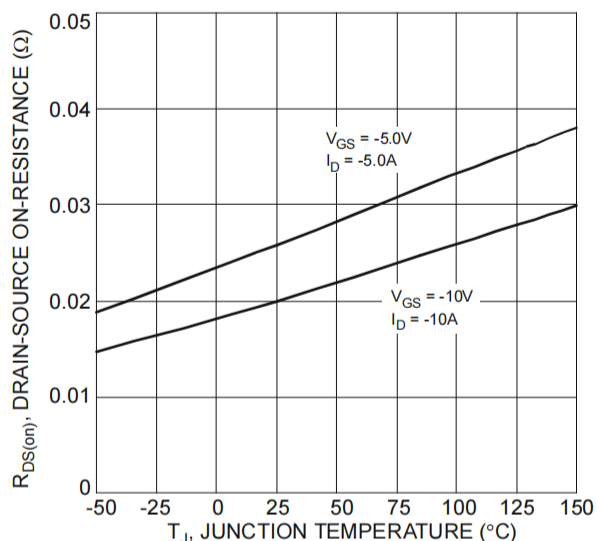


Figure 7 On-Resistance Variation with Temperature

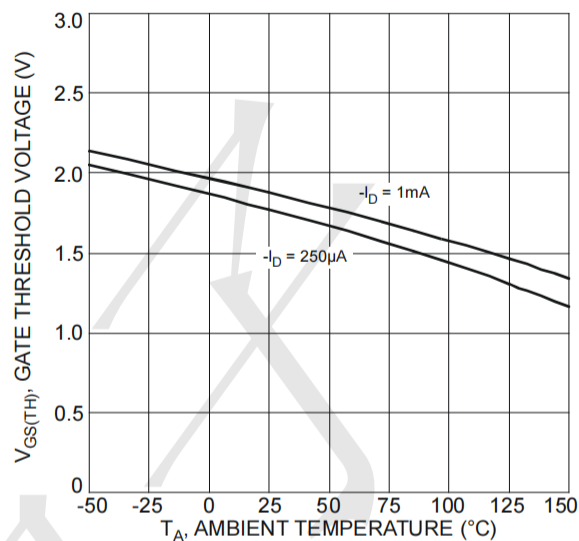


Figure 8 Gate Threshold Variation vs. Ambient Temperature

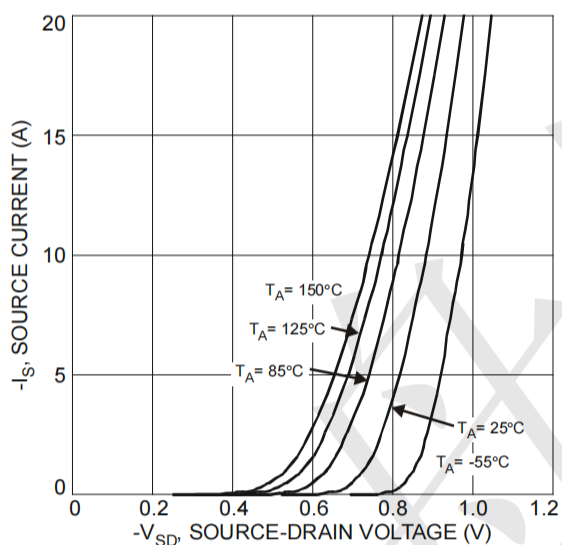
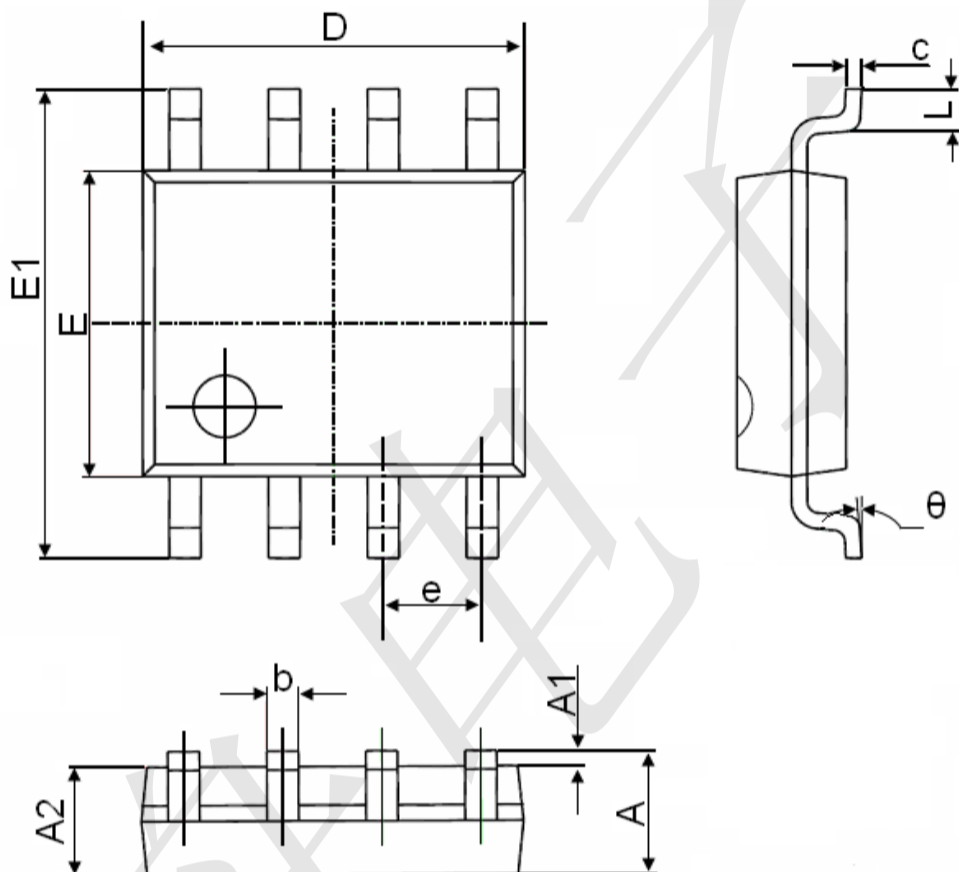


Figure 9 Diode Forward Voltage vs. Current

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°

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