



General Description

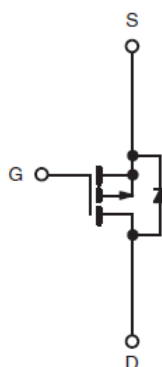
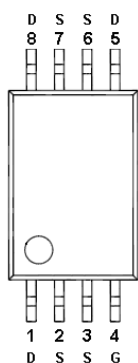
AFP6459, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

- -60V/-5.4A, $R_{DS(ON)}=102m\Omega@V_{GS}=10V$
- -60V/-4.0A, $R_{DS(ON)}=115m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- TSSOP-8P package design

Pin Description (TSSOP-8P)



Application

- Load Switch
- Portable Equipment
- Battery Powered System

Pin Define

Pin	Symbol	Description
1	D	Drain
2	S	Source
3	S	Source
4	G	Gate
5	D	Drain
6	S	Source
7	S	Source
8	D	Drain

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP6459TS8RG	6459	TSSOP-8P	Tape & Reel	3000 EA

※ A Lot code

※ B Date code

※ AFP6459TS8RG : 13" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

($T_A=25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V_{DSS}	-60	V
Gate –Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current($T_J=150^\circ\text{C}$)	I_D	$T_A=25^\circ\text{C}$	-5.4
		$T_A=70^\circ\text{C}$	-4.0
Pulsed Drain Current	I_{DM}	-20	A
Continuous Source Current(Diode Conduction)	I_S	-1.5	A
Power Dissipation	P_D	$T_A=25^\circ\text{C}$	2.8
		$T_A=70^\circ\text{C}$	1.8
Operating Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55/150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$

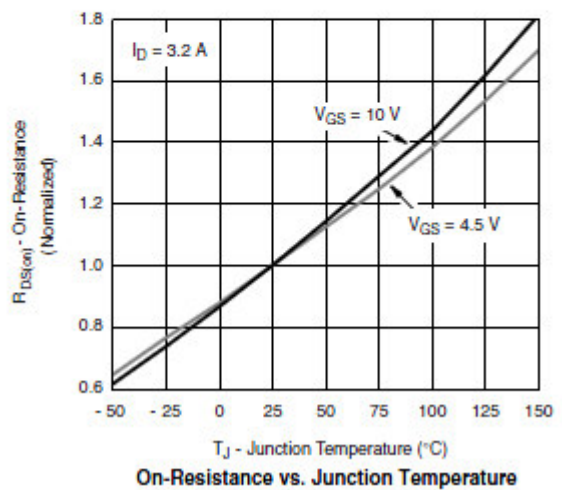
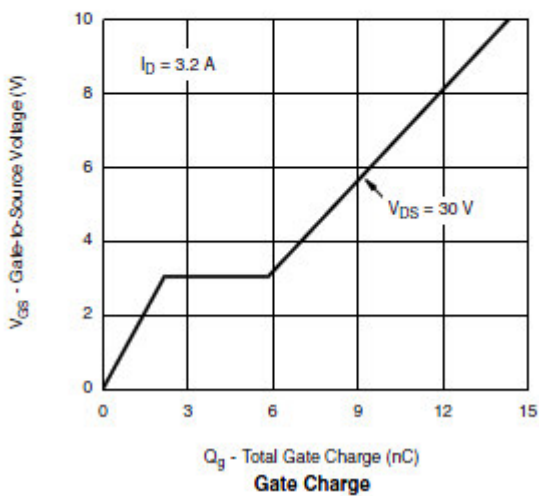
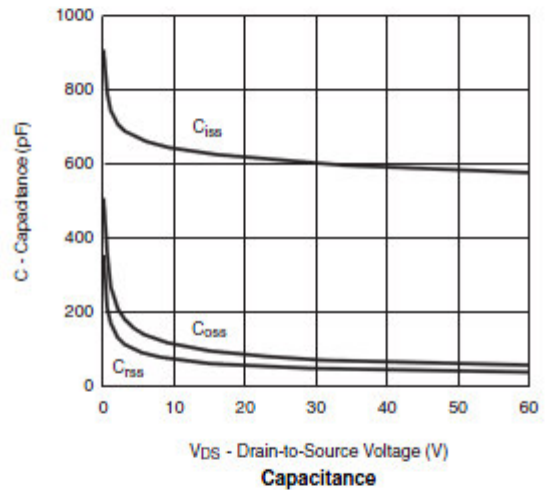
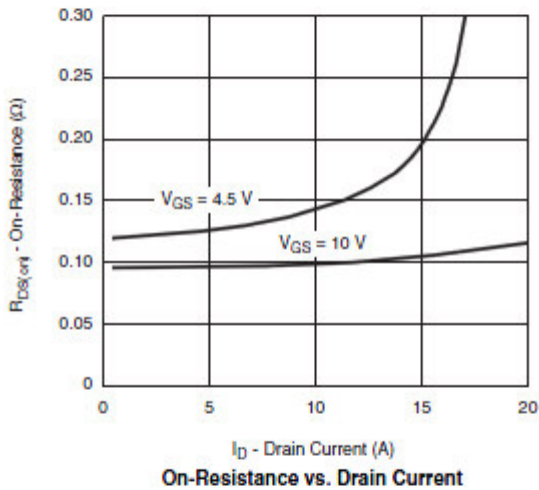
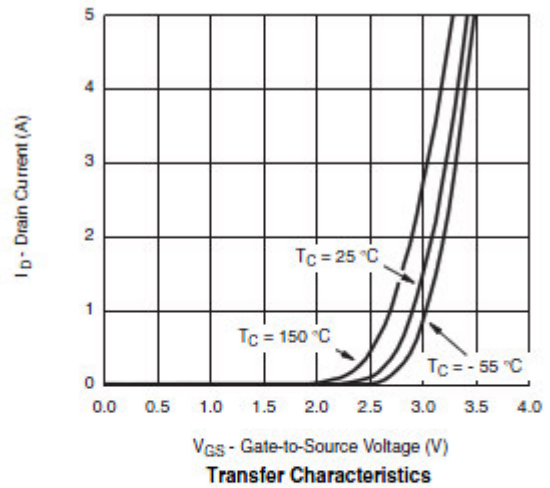
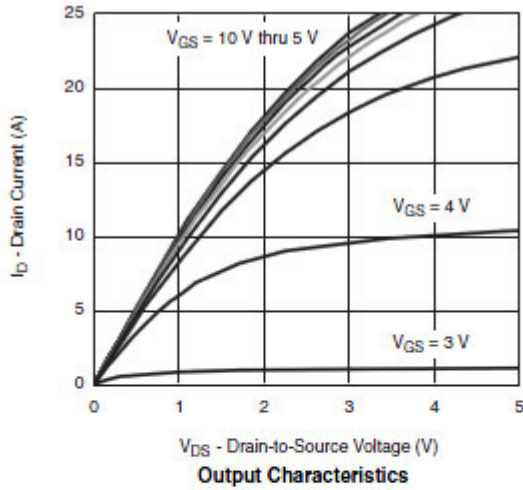
Electrical Characteristics

($T_A=25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D = -250\mu A$	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D = -250\mu A$	-0.8		-2.5	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -48V, V_{GS}=0V$			-1	
		$V_{DS} = -48V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			-20	μA
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq -5V, V_{GS} = -10V$	-20			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -5.4A$		92	102	
		$V_{GS} = -4.5V, I_D = -4.0A$		100	115	$m\Omega$
Forward Transconductance	g_{FS}	$V_{DS} = -15V, I_D = -3.2A$		12		S
Diode Forward Voltage	V_{SD}	$I_S = -2A, V_{GS}=0V$		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = -30V, V_{GS} = -10V$ $I_D = -4.0A$		12	20	nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			3.5		
Input Capacitance	C_{iss}	$V_{DS} = -30V, V_{GS} = 0V$ $f = 1\text{MHz}$		900		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			40		
Turn-On Time	$t_{d(on)}$	$V_{DD} = -30V, R_L = 7.5\Omega$ $I_D = -3.8A, V_{GEN} = -10V$ $R_G = 3\Omega$		10	20	ns
	t_r			6	10	
Turn-Off Time	$t_{d(off)}$			30	45	
	t_f			12	25	

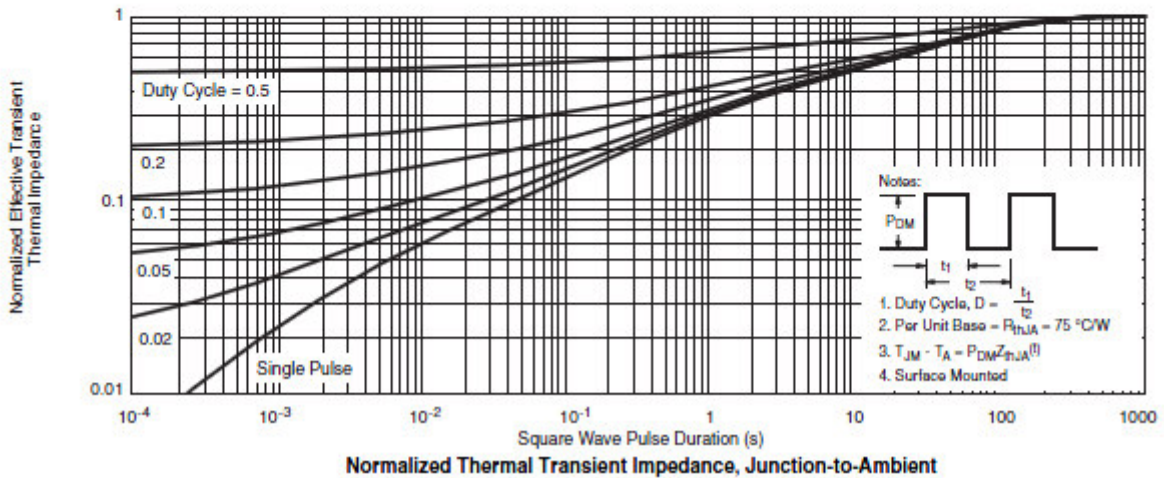
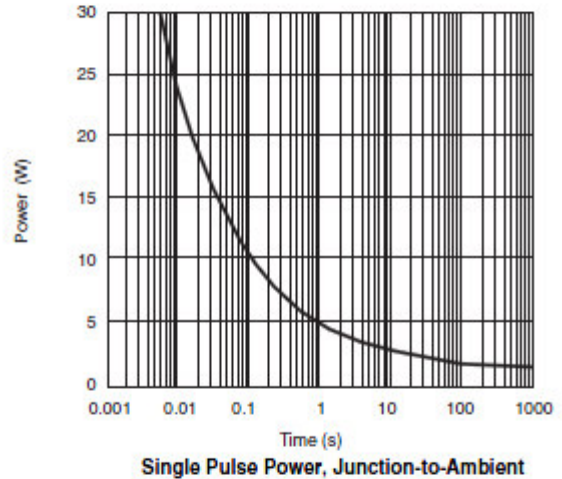
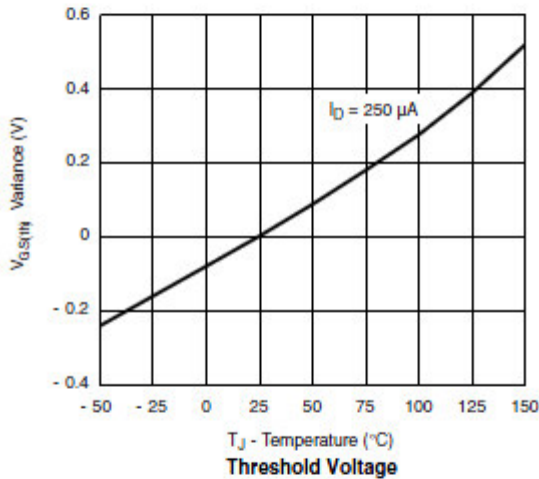
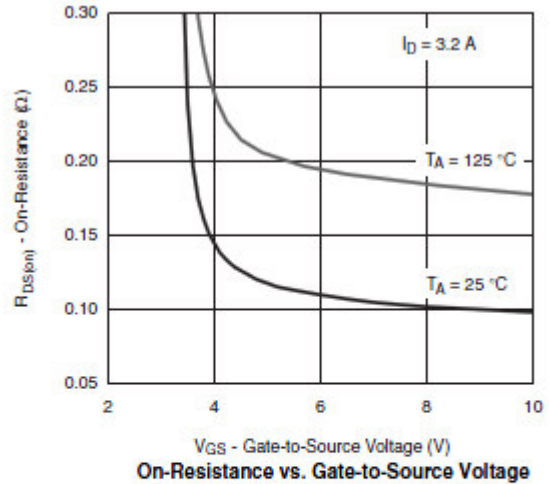
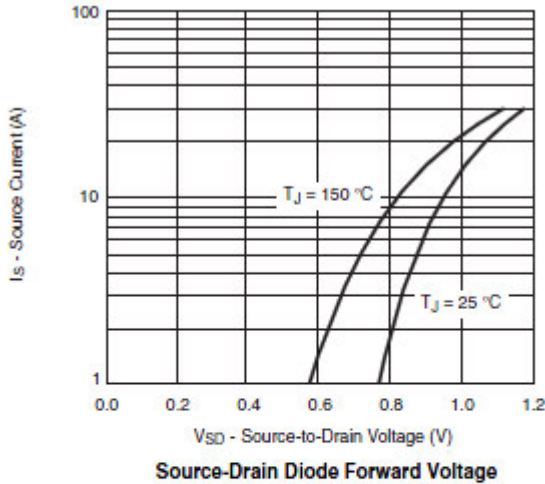


Typical Characteristics





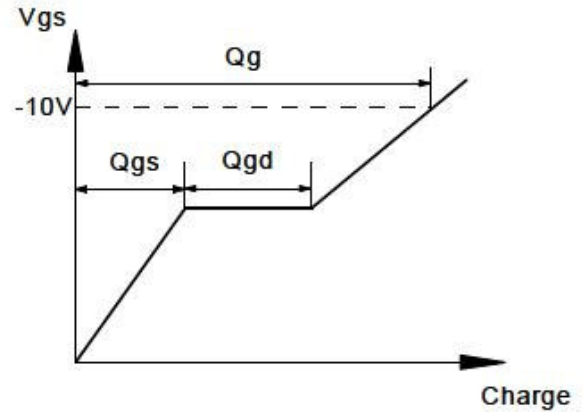
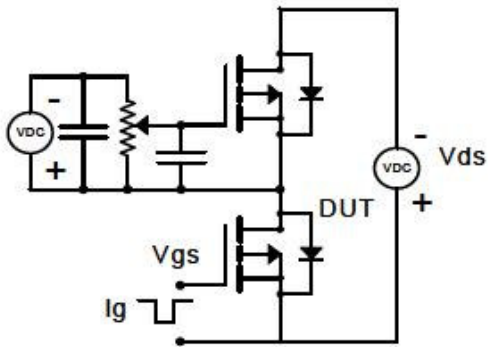
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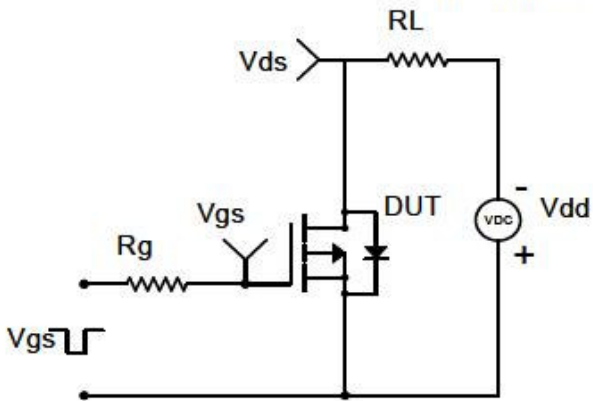


Typical Characteristics

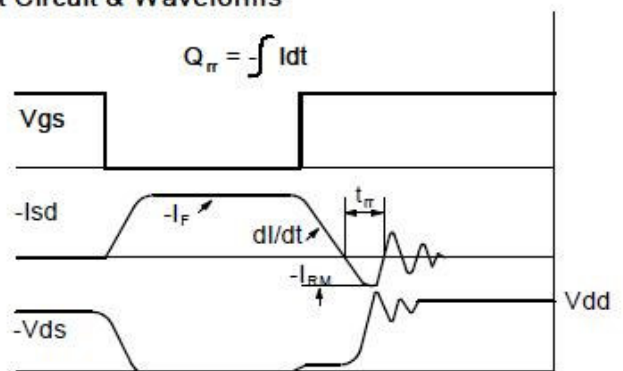
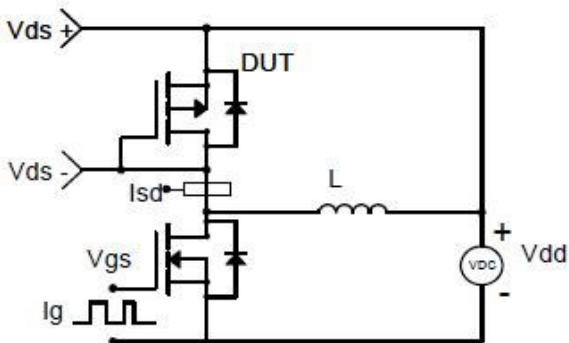
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

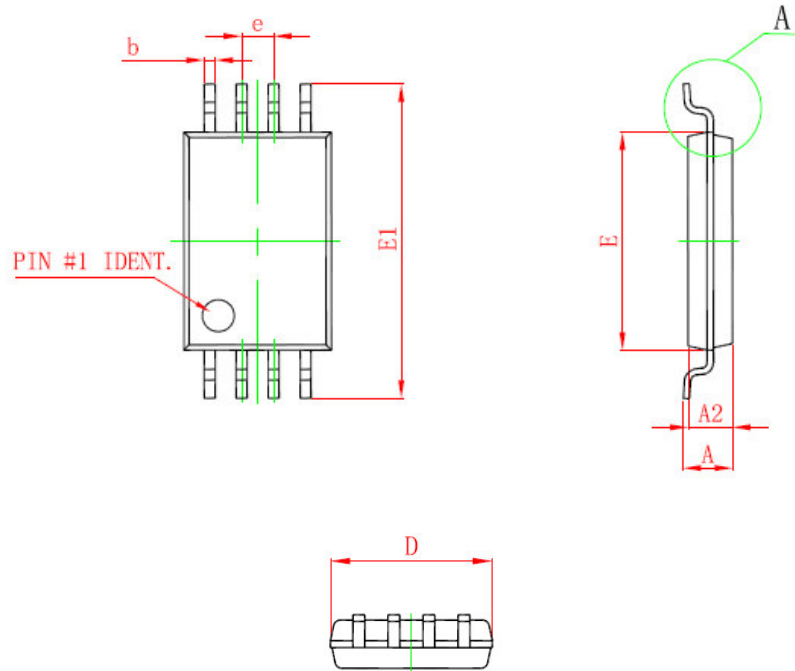


Diode Recovery Test Circuit & Waveforms





Package Information (TSSOP-8P)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.100		0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25 (TYP)		0.01 (TYP)	
θ	1°	7°	1°	7°

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