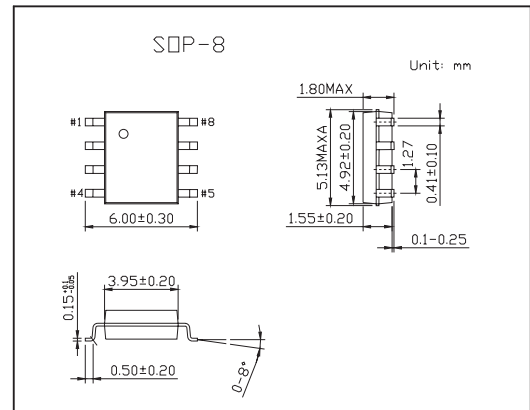
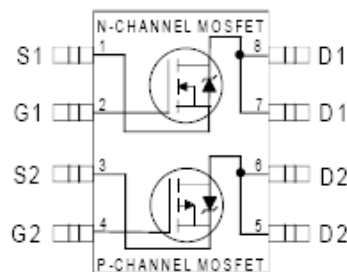


■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Dual N and P Channel MOSFET
- Surface Mount
- Fully Avalanche Rated



■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	$V_{DS}$	55	-55	V
Continuous Drain Current, $V_{GS}@10V, T_a = 25^\circ\text{C}$	$I_D$	4.7	-3.4	A
Continuous Drain Current, $V_{GS}@10V, T_a = 70^\circ\text{C}$	$I_D$	3.8	-2.7	
Pulsed Drain Current *1	$I_{DM}$	38	-27	
Power Dissipation @ $T_a = 25^\circ\text{C}$ *5	$P_D$	2.0		W
Power Dissipation @ $T_a = 70^\circ\text{C}$ *5		1.3		
Gate-to-Source Voltage	$V_{GS}$	$\pm 20$		V
Single Pulse Avalanche Energy *3	$E_{AS}$	72	114	mJ
Avalanche Current	$I_{AR}$	4.7	-3.4	A
Repetitive Avalanche Energy	$E_{AR}$	0.20		mJ
Peak Diode Recovery $dv/dt$ *2	$dv/dt$	5.0	-5.0	V/ns
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150		$^\circ\text{C}$
Maximum Junction-to-Ambient *5	$R_{\theta JA}$	62.5		$^\circ\text{C}/\text{W}$

\*1 Repetitive rating; pulse width limited by max. junction temperature.

\*2 N-Channel  $I_{SD} \leq 4.7\text{A}, di/dt \leq 220\text{A}/\mu\text{s}, V_{DD} \leq V_{(BR)DSS}, T_J \leq 150^\circ\text{C}$

P-Channel  $I_{SD} \leq -3.4\text{A}, di/dt \leq -150\text{A}/\mu\text{s}, V_{DD} \leq V_{(BR)DSS}, T_J \leq 150^\circ\text{C}$

\*3 N-Channel Starting  $T_J = 25^\circ\text{C}, L = 6.5\text{mH}, R_G = 25\Omega, I_{AS} = 4.7\text{A}.$

P-Channel Starting  $T_J = 25^\circ\text{C}, L = 20\text{mH}, R_G = 25\Omega, I_{AS} = -3.4\text{A}.$

\*5 Surface mounted on FR-4 board,  $t \leq 10\text{sec}.$

\*4 Pulse width  $\leq 300\mu\text{s};$  duty cycle  $\leq 2\%.$

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250 μA	N-Ch	55		V
		V <sub>GS</sub> = 0V, I <sub>D</sub> = -250 μA	P-Ch	-55		
Breakdown Voltage Temp. Coefficient	ΔV <sub>(BR)DSS</sub> /ΔT <sub>J</sub>	I <sub>D</sub> = 1mA, Reference to 25°C	N-Ch	0.059		V/°C
		I <sub>D</sub> = -1mA, Reference to 25°C	P-Ch	0.054		
Static Drain-to-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 4.7A*1	N-Ch	0.043	0.050	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3.8A*1		0.056	0.065	
		V <sub>GS</sub> = -10V, I <sub>D</sub> = -3.4A*1	P-Ch	0.095	0.105	
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.7A*1		0.150	0.170	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	N-Ch			V
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	P-Ch			
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 4.5A*1	N-Ch			S
		V <sub>DS</sub> = -10V, I <sub>D</sub> = -3.5A*1	P-Ch			
Drain-to-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> = 55V, V <sub>GS</sub> = 0V	N-Ch		2.0	μA
		V <sub>DS</sub> = -55V, V <sub>GS</sub> = 0V	P-Ch		-2.0	
		V <sub>DS</sub> = 55V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55°C	N-Ch		25	
		V <sub>DS</sub> = -55V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55°C	P-Ch		-25	
Gate-to-Source Forward Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V	N-Ch		±100	nA
			P-Ch		±100	
Total Gate Charge	Q <sub>g</sub>	N-Channel I <sub>D</sub> = 4.5A, V <sub>DS</sub> = 44V, V <sub>GS</sub> = 10V	N-Ch	24	36	nC
Gate-to-Source Charge	Q <sub>gs</sub>		P-Ch	26	38	
			N-Ch	2.3	3.4	
Gate-to-Drain ("Miller") Charge	Q <sub>gd</sub>		P-Channel I <sub>D</sub> = -3.1A, V <sub>DS</sub> = -44V, V <sub>GS</sub> = -10V	P-Ch	3.0	
		N-Ch	7.0	10		
Turn-On Delay Time	t <sub>d(on)</sub>	N-Channel V <sub>DD</sub> = 28V, I <sub>D</sub> = 1.0A, R <sub>G</sub> = 6.0 Ω	N-Ch	8.3	12	ns
			P-Ch	14	22	
Rise Time	t <sub>r</sub>	R <sub>D</sub> = 16 Ω P-Channel	N-Ch	3.2	4.8	
			P-Ch	10	15	
Turn-Off Delay Time	t <sub>d(off)</sub>	V <sub>DD</sub> = -28V, I <sub>D</sub> = -1.0A, R <sub>G</sub> = 6.0 Ω R <sub>D</sub> = 16 Ω	N-Ch	32	48	
			P-Ch	43	64	
Fall Time	t <sub>f</sub>		N-Ch	13	20	
			P-Ch	22	32	
Input Capacitance	C <sub>iss</sub>	N-Channel V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1.0MHz	N-Ch	740		pF
			P-Ch	690		
Output Capacitance	C <sub>oss</sub>	P-Channel	N-Ch	190		
			P-Ch	210		
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -25V, f = 1.0MHz	N-Ch	71		
			P-Ch	86		

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit	
Continuous Source Current (Body Diode)	Is		N-Ch		2.0	A	
			P-Ch		-2.0		
Pulsed Source Current (Body Diode) *2	ISM		N-Ch		38		
			P-Ch		-27		
Diode Forward Voltage	VSD	TJ = 25°C, Is = 2.0A, VGS = 0V*1	N-Ch	0.70	1.2	V	
		TJ = 25°C, Is = -2.0A, VGS = 0V*1	P-Ch	0.80	-1.2		
Reverse Recovery Time	trr	N-Channel TJ = 25°C, IF = 2.0A, di/dt = 100A/μs*1	N-Ch	60	90	ns	
			P-Ch	54	80		
Reverse RecoveryCharge	Qrr		P-Channel TJ=25°C,IF=-2.0A,di/dt=-100A/μs*1	N-Ch	120	170	nC
				P-Ch	85	130	

\*1 Pulse width ≤ 300 μs; duty cycle ≤ 2%.

\*2 Repetitive rating; pulse width limited by max. junction temperature.