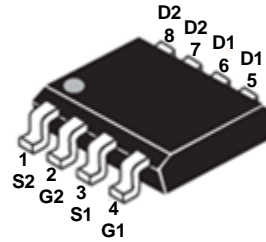


### General Description

These -30V dual P-Channel enhancement mode power field effect transistors in one package are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.



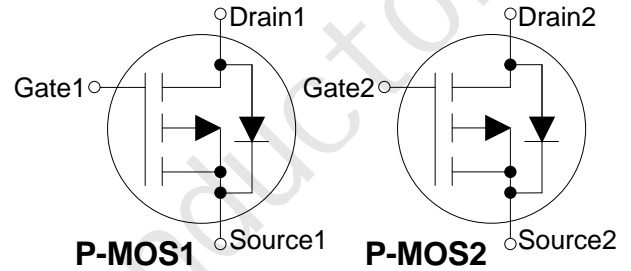
- |             |            |
|-------------|------------|
| 1. Source 2 | 8. Drain 2 |
| 2. Gate 2   | 7. Drain 2 |
| 3. Source 1 | 6. Drain 1 |
| 4. Gate 1   | 5. Drain 1 |

### Features

- $V_{DS} = -30V$
- $I_D = -9A$  @  $V_{GS} = -10V$
- $R_{ds(on)} = 14m\Omega$  (Typ.) @  $V_{GS} = -10V$
- $R_{ds(on)} = 19m\Omega$  (Typ.) @  $V_{GS} = -4.5V$
- Fast switching speed
- High power and current handling capability
- Package: SOP-8L
- Pb-Free and Green devices are available

### Applications

- POL Applications
- Load Switch
- LED Applications



### Absolute Maximum Ratings ( $T_A = 25^\circ C$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		$V_{DS}$	-30	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Drain Current <sup>a</sup>	$T_C = 25^\circ C$	$I_D$	-9	A
	$T_C = 70^\circ C$		-5	
Drain Current – Pulsed <sup>a</sup>		$I_{DM}$	-36	A
Power Dissipation ( $T_C = 25^\circ C$ )		$P_D$	2.1	W
Power Dissipation – Decrease above $25^\circ C$			0.017	
Storage Temperature Range		$T_{STG}$	-55 ~ +150	$^\circ C$
Operating Junction Temperature Range		$T_J$	-55 ~ +150	$^\circ C$
Thermal Resistance, Junction-to-Ambient1		$R_{\theta JA}$	62.5	$^\circ C/W$

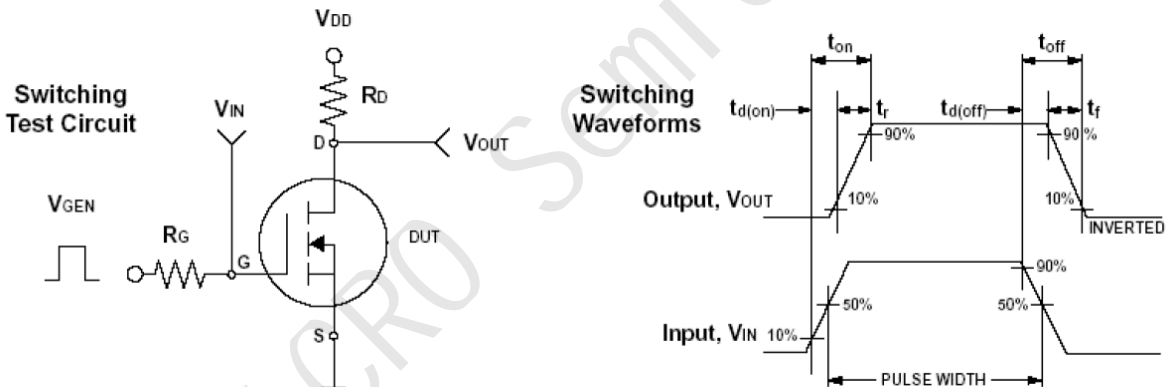
### Electrical Characteristics ( $T_A = 25^\circ C$ unless otherwise noted)

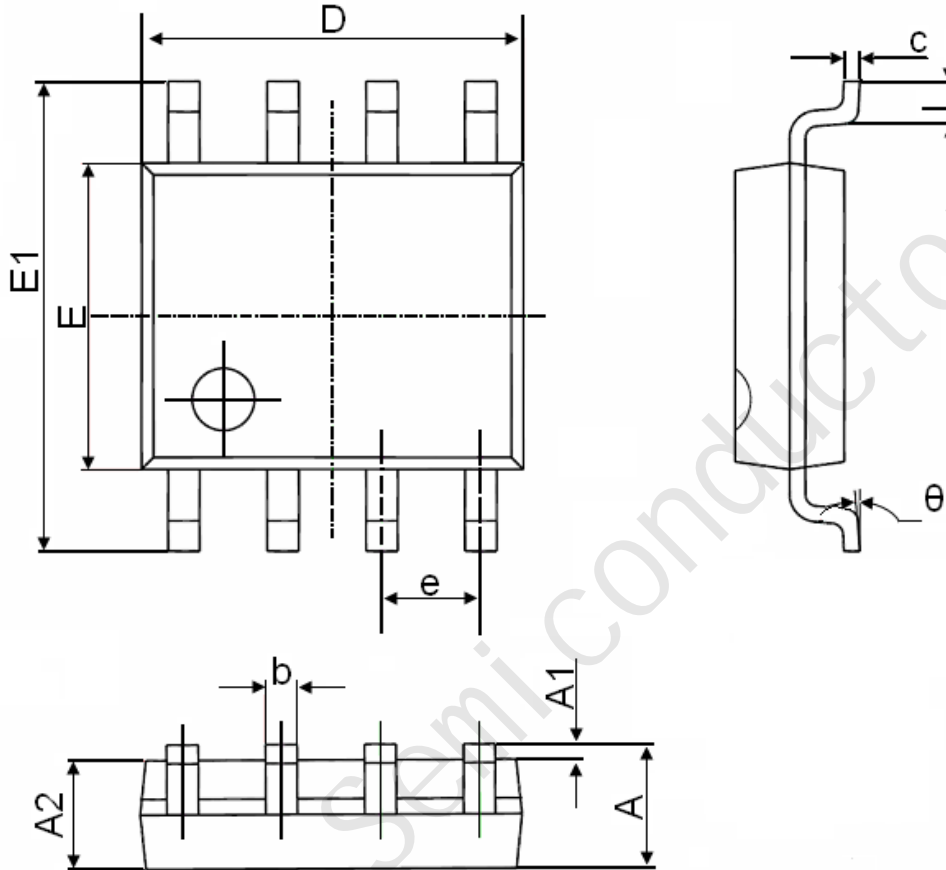
Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30	---	---	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$T_J = 25^\circ C$	---	---	-1	$\mu A$
		$T_J = 125^\circ C$	---	---	-10	$\mu A$
Gate-Body Leakage	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$	---	---	$\pm 100$	nA
<b>On Characteristics <sup>a</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.2	---	-2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -9.0A$	---	14	18	m $\Omega$
		$V_{GS} = -4.5V, I_D = -5.0A$	---	19	29	
Forward Transconductance	$g_{fs}$	$V_{DS} = -5V, I_D = -9A$	---	18	---	S

Drain-Source Diode Characteristics <sup>a</sup>						
Continuous Source Current	$I_S$	$V_G=V_D=0V$ , Force Current	---	---	-9	A
Pulsed Source Current	$I_{SM}$		---	---	-36	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ , $I_S=-1.0A$ , $T_J=25^\circ C$	---	---	-1.0	V
Dynamic Characteristics <sup>b</sup>						
Input Capacitance	$C_{iss}$	$V_{DS}=-15V$ , $V_{GS}=0V$ , $F=1MHz$	---	1800	---	pF
Output Capacitance	$C_{oss}$		---	305	---	
Reverse Transfer Capacitance	$C_{rss}$		---	216	---	
Switching Characteristics <sup>b</sup>						
Total Gate Charge	$Q_g$	$V_{DS}=-15V$ , $V_{GS}=-10V$ , $I_D=-9A$	---	30	---	nC
Gate-Source Charge	$Q_{gs}$		---	6	---	
Gate-Drain Charge	$Q_{gd}$		---	9	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=-15V$ , $V_{GS}=-10V$ , $R_L=15\Omega$ $I_D=-1A$ , $R_G=2.5\Omega$	---	10	---	ns
Rise Time	$T_r$		---	26	---	
Turn-Off Delay Time	$T_{d(off)}$		---	35	---	
Fall Time	$T_f$		---	8	---	

Notes: a. Repetitive Rating: Pulsed width limited by maximum junction temperature.  
 b. Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .  
 c. Guaranteed by design, not subject to production testing.

### Switching Time Test Circuit and Waveforms

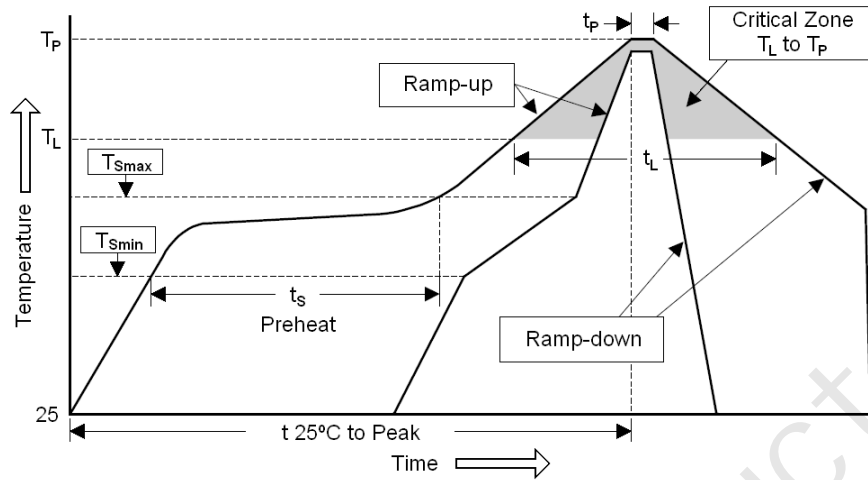


**SOP-8 Package Information**


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
theta	0°	8°	0°	8°

**Soldering Methods For Products**

1. Storage environment : Temperature=10°C~35°C, Humidity=65%±15%
2. Reflow soldering of surface mount devices


**Figure : Temperature Profile**

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	< 3°C/sec	< 3°C/sec
Preheat		
- Temperature Min ( $T_{Smin}$ )	100°C	100°C
- Temperature Max ( $T_{Smax}$ )	150°C	200°C
- Time (Min to Max) ( $t_s$ )	60 ~ 120 sec	60 ~ 180 sec
$T_{Smax}$ to $T_L$		
- Ramp-up rate	< 3°C/sec	< 3°C/sec
Time maintained above:		
- Temperature ( $T_L$ )	183°C	217°C
- Time ( $t_L$ )	60 ~ 150 sec	60 ~ 150 sec
Peak Temperature ( $T_P$ )	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature ( $t_p$ )	10 ~ 30 sec	20 ~ 40 sec
Ramp-down rate	< 6°C/sec	< 6°C/sec
Time 25°C to Peak Temperature	< 6 minutes	< 8 minutes

3. Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb devices	245°C ±5°C	5sec ±1sec
Pb-Free devices	260°C +0/-5°C	5sec ±1sec

- 经锡炉或回焊炉的温度切勿超过 260 °C (Max safe temperature: 260°C)。

**Notices:**

- All companies, brands, logos, pictures, product names and trademarks are the property of owner respective companies.
- 规格书内容、版本或参数规格如有更改恕不另行通知，如有特定规格的需求请事先告知，如因此而造成任何的问题，供应商不承担任何赔偿和法律责任。
- MOS 管电路是静电敏感元器件，且对生产环境要求较严，建议在存放、运输及生产操作时一定要避免静电干扰。
- 由于每个 PCB 版图和设计都不同，每个 MOSFET 的结构也不同，因此，没有通用的流程可用来计算每个应用的最大允许电流，建议在选用 MOS 管器件时考虑到余量，以免 MOS 管因此而造成损坏。

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [JSMSEMI](#) manufacturer:*

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [TK100A10N1,S4X\(S](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)  
[IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [TK31J60W5,S1VQ\(O](#) [TK31J60W,S1VQ\(O](#) [TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#)  
[DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#) [NTE2384](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#)  
[DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)  
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)  
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)  
[MCQ7328-TP](#) [SSM3J143TU,LXHF](#) [DMN12M3UCA6-7](#) [PJMF280N65E1\\_T0\\_00201](#) [PJMF380N65E1\\_T0\\_00201](#)  
[PJMF280N60E1\\_T0\\_00201](#) [PJMF600N65E1\\_T0\\_00201](#) [PJMF900N65E1\\_T0\\_00201](#)