

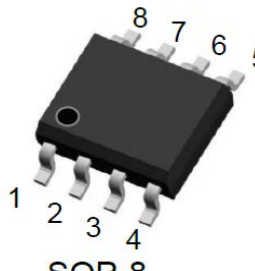
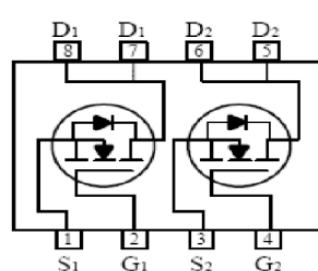
## Dual N-Channel High Density Trench MOSFET (30V, 6.9A)

### PRODUCT SUMMARY

$V_{DSS}$	$I_D$	$R_{DS(on)}$ (m $\Omega$ ) Typ.
30V	6.9A	24 @ $V_{GS} = 10V, I_D=6.9A$
		30 @ $V_{GS} = 4.5V, I_D=5.8A$

### Features

- Super high density cell design for extremely low RDS(ON)
- Exceptional on-resistance and maximum DC current capability
- Lead (Pb) -free and halogen-free

 <p>SOP-8</p>		<p>Pin1: Source1 Pin2: Gate1 Pin3: Source2 Pin4: Gate2 Pin5/6: Drain2 Pin7/8: Drain1</p>	TOP Marking
			4 8 1 2 XXXXXX
			XXXXXX:D/C

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

Symbol	Parameter	Ratings	Units
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current (Continuous) @ $T_A=25^\circ\text{C}$	6.9	A
	Drain Current (Continuous) @ $T_A=75^\circ\text{C}$	5.4	A
$I_{DM}$	Drain Current (Pulsed) <sup>a</sup>	30	A
$P_D$	Total Power Dissipation @ $T_A=25^\circ\text{C}$	2	W
	Total Power Dissipation @ $T_A=75^\circ\text{C}$	1.3	W
$I_S$	Maximum Diode Forward Current	1.7	A
$T_j, T_{stg}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$R_{QJA}$	Thermal Resistance Junction to Ambient (PCB mounted) <sup>b</sup>	62	$^\circ\text{C/W}$

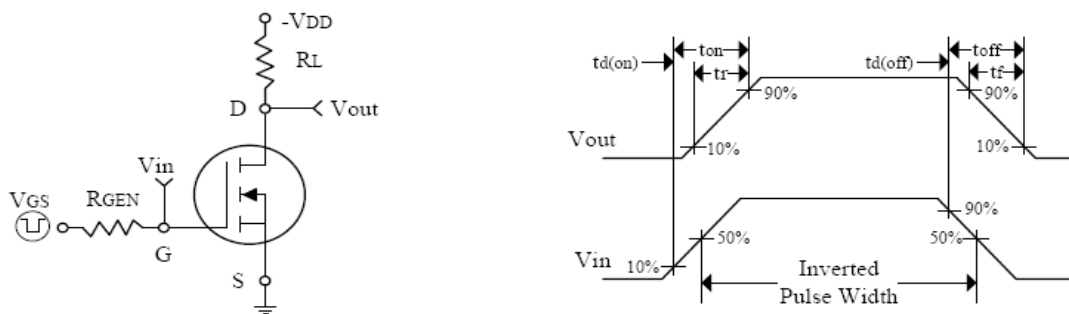
a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

b: 1-in<sup>2</sup> 2oz Cu PCB board

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

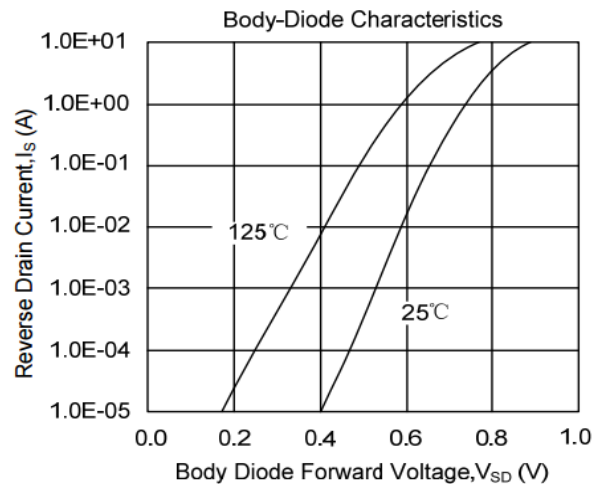
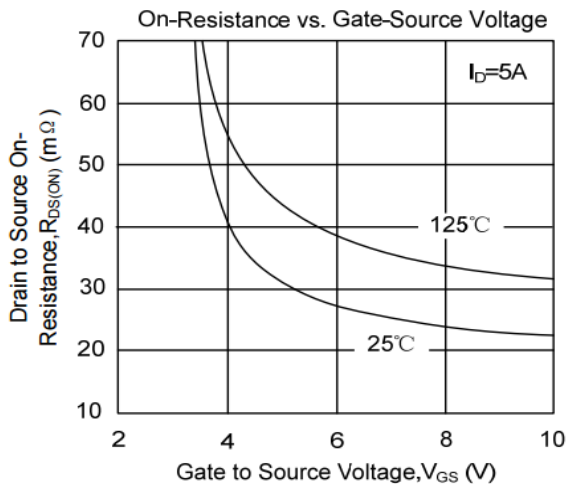
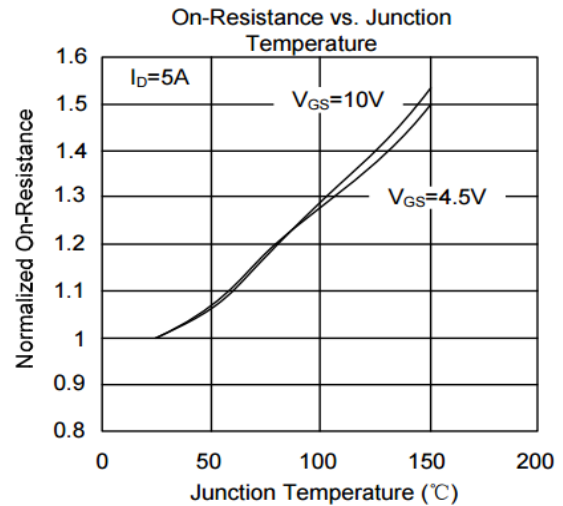
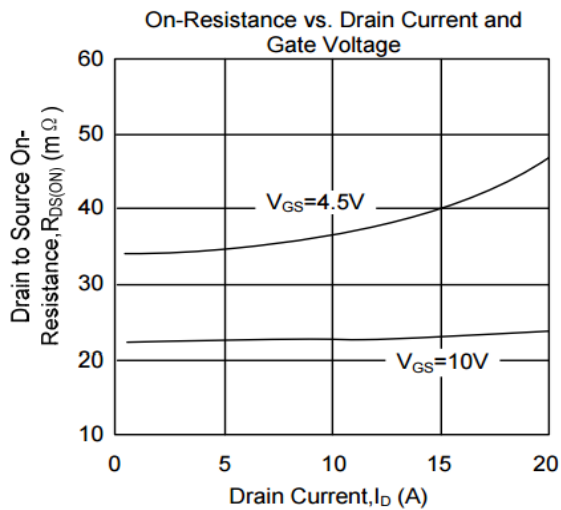
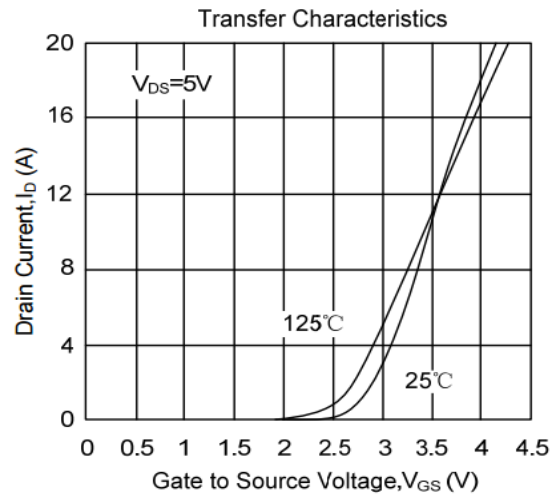
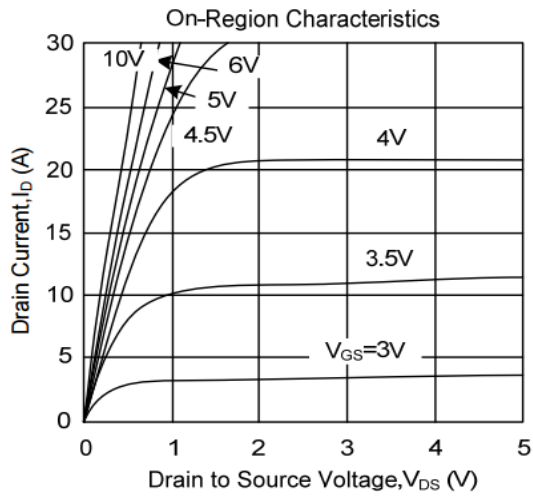
Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
<b>• Off Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	-	-	1	$\mu A$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>• On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.7	2.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=4.5V, I_D=5.8A$	-	30	40	m $\Omega$
		$V_{GS}=10V, I_D=6.9A$	-	24	26	
<b>• Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$	-	610	-	PF
$C_{oss}$	Output Capacitance		-	100	-	
$C_{rss}$	Reverse Transfer Capacitance		-	78	-	
<b>• Switching Characteristics</b>						
$Q_g$	Total Gate Charge	$V_{DS}=15V, I_D=6.9A, V_{GS}=10V$	-	13	-	nC
$Q_{gs}$	Gate-Source Charge		-	4.2	-	
$Q_{gd}$	Gate-Drain Charge		-	3.1	-	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=15V, R_L=15\Omega, I_D=1A, V_{GEN}=10V, R_G=6\Omega$	-	10	-	nS
$t_r$	Turn-on Rise Time		-	15	-	
$t_{d(off)}$	Turn-off Delay Time		-	31	-	
$t_f$	Turn-off Fall Time		-	6	-	
<b>• Drain-Source Diode Characteristics</b>						
$V_{SD}$	Drain-Source Diode Forward	$V_{GS}=0V, I_S=2.0A$	-	-	1.2	V

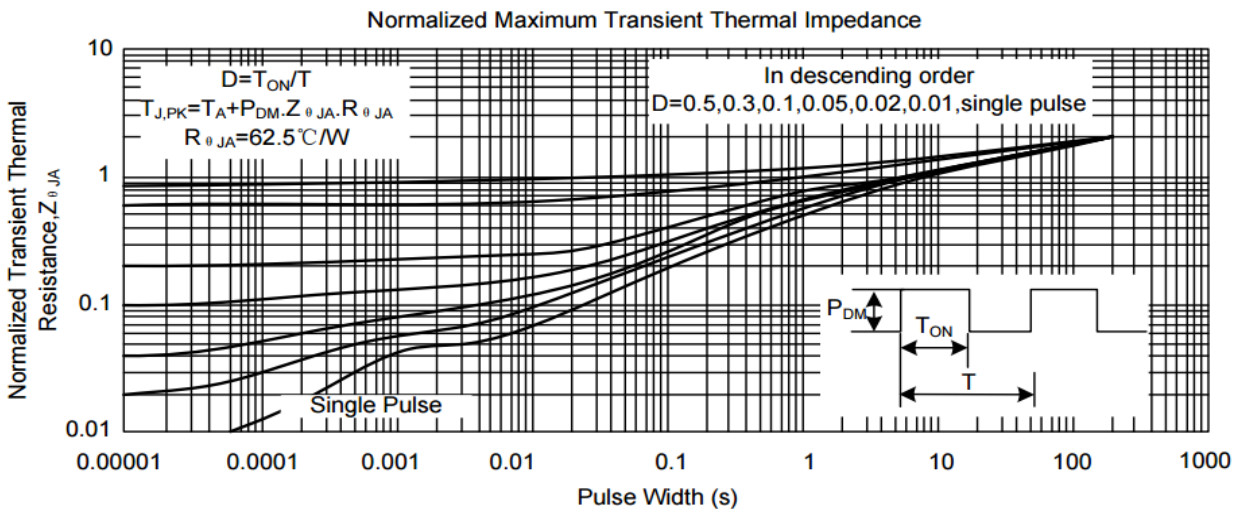
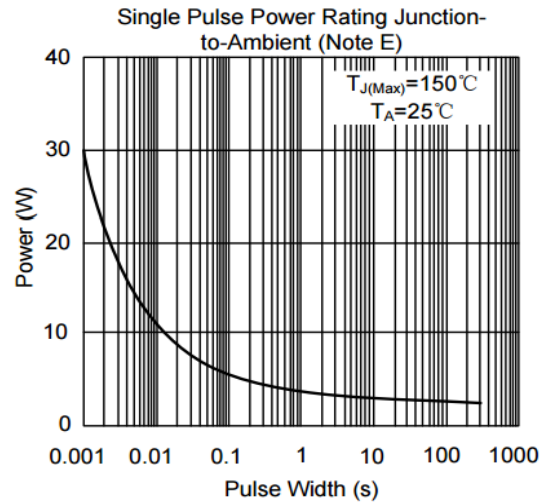
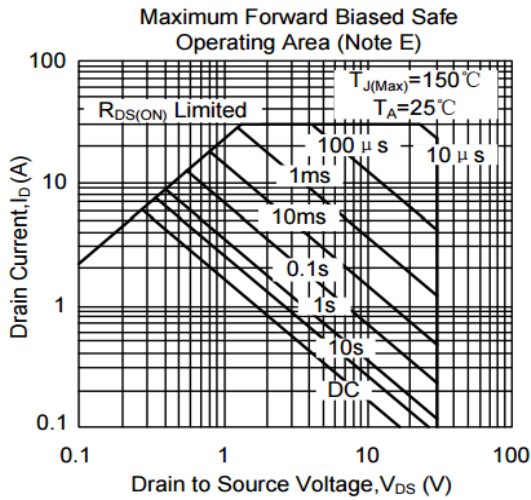
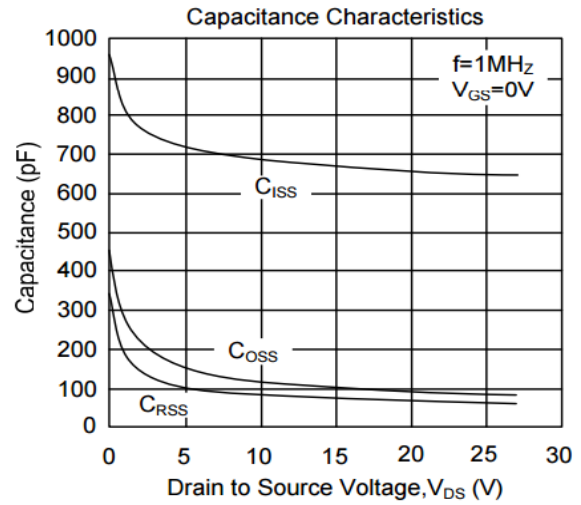
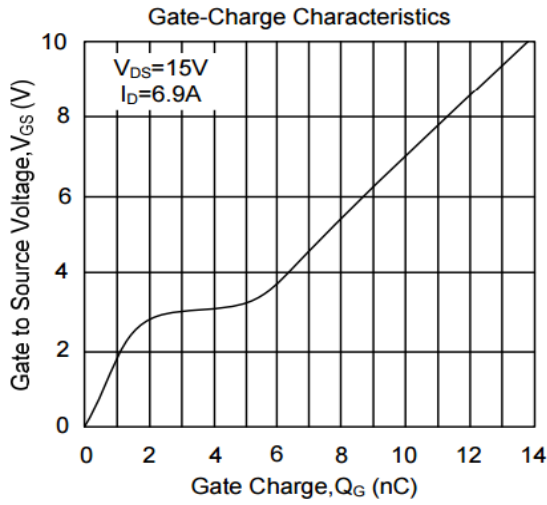
Note: Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$



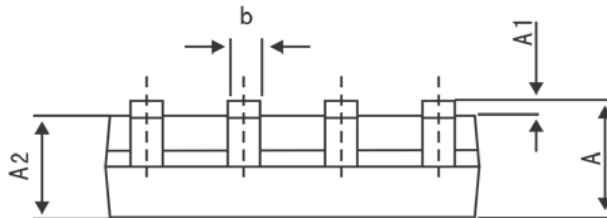
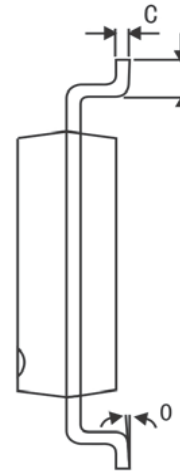
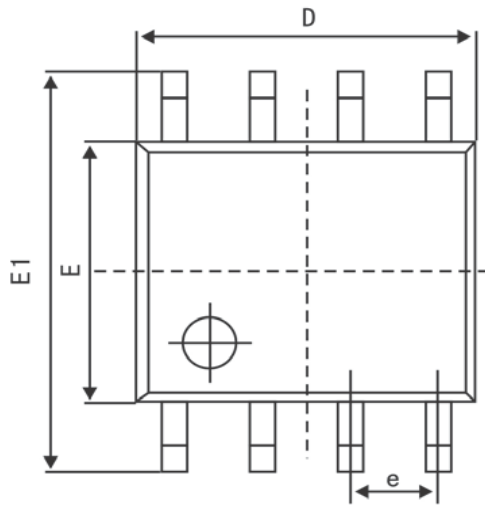
Switching Test Circuit and Switching Waveforms

## Typical Characteristics Curves (Ta=25°C, unless otherwise note)





### ES9926 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters (MM)		Dimensions In Inches (MIL)	
	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	0.007	0.010
D	4.700	5.100	0.185	0.201
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°

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