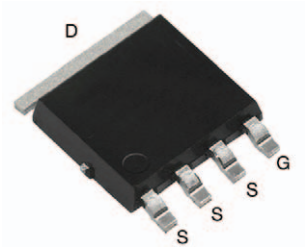
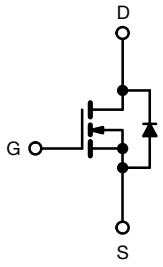
E Series Power MOSFET

PRODUCT SUMMARY		
V_{DS} (V) at T_J max.	700	
$R_{DS(on)}$ typ. (Ω) at 25 °C	V_{GS} = 10 V	0.520
Q_g max. (nC)	44	
Q_{gs} (nC)	6	
Q_{gd} (nC)	9	
Configuration	Single	

PowerPAK® SO-8L Single





N-Channel MOSFET

FEATURES

- Low figure-of-merit (FOM) R_{on} x Q_g
- Low input capacitance (C_{iss})
- Reduced switching and conduction losses
- Ultra low gate charge (Q_g)
- Avalanche energy rated (UIS)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE

APPLICATIONS

- Switch mode power supplies (SMPS)
- Flyback converter
- Lighting
  - High-intensity discharge (HID)
  - Fluorescent ballast lighting
- Consumer
  - Wall adaptors

ORDERING INFORMATION	
Package	PowerPAK SO-8L
Lead (Pb)-free and Halogen-free	SiHJ7N65E-T1-GE3

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C, unless otherwise noted)

PARAMETER			SYMBOL	LIMIT	UNIT
Drain-Source Voltage			V_{DS}	650	V
Gate-Source Voltage			V_{GS}	± 30	
Continuous Drain Current (T_J = 150 °C)	V_{GS} at 10 V	T_C = 25 °C	I_D	7.9	A
		T_C = 100 °C		5.0	
Pulsed Drain Current [a]			I_{DM}	17	
Linear Derating Factor				0.77	W/°C
Single Pulse Avalanche Energy [b]			E_{AS}	68	mJ
Maximum Power Dissipation			P_D	96	W
Operating Junction and Storage Temperature Range			T_J, T_{stg}	-55 to +150	°C
Drain-Source Voltage Slope	T_J = 125 °C		dV/dt	70	V/ns
Reverse Diode dV/dt [d]				14	

Notes

a. Repetitive rating; pulse width limited by maximum junction temperature.
b. V_{DD} = 120 V, starting T_J = 25 °C, L = 28.2 mH, R_g = 25 Ω, I_{AS} = 2.2 A.
c. $I_{SD} \leq I_D$, dI/dt = 100 A/µs, starting T_J = 25 °C.

THERMAL RESISTANCE RATINGS				
PARAMETER	SYMBOL	TYP.	MAX.	UNIT
Maximum Junction-to-Ambient	R_{thJA}	52	65	°C/W
Maximum Junction-to-Case (Drain)	R_{thJC}	1.0	1.3	

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SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)							
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**MIN.**	**TYP.**	**MAX.**	**UNIT**
Static							
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0 V, I_D = 250 µA		650	-	-	V
V_{DS} Temperature Coefficient	$\Delta V_{DS}/T_J$	Reference to 25 °C, I_D = 1 mA		-	0.8	-	V/°C
Gate-Source Threshold Voltage (N)	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA		2.0	-	4.0	V
Gate-Source Leakage	I_{GSS}	V_{GS} = ± 20 V		-	-	± 100	nA
		V_{GS} = ± 30 V		-	-	± 1	µA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 650 V, V_{GS} = 0 V		-	-	1	µA
		V_{DS} = 520 V, V_{GS} = 0 V, T_J = 125 °C		-	-	10	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 10 V	I_D = 3.5 A	-	0.520	0.598	Ω
Forward Transconductance	g_{fs}	V_{DS} = 30 V, I_D = 3.5 A		-	2.3	-	S
Dynamic							
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = 100 V, f = 1 MHz		-	820	-	pF
Output Capacitance	C_{oss}			-	48	-	
Reverse Transfer Capacitance	C_{rss}			-	4	-	
Effective Output Capacitance, Energy Related [a]	$C_{o(er)}$	V_{DS} = 0 V to 520 V, V_{GS} = 0 V		-	33	-	
Effective Output Capacitance, Time Related [b]	$C_{o(tr)}$			-	118	-	
Total Gate Charge	Q_g	V_{GS} = 10 V	I_D = 3.5 A, V_{DS} = 520 V	-	22	44	nC
Gate-Source Charge	Q_{gs}			-	6	-	
Gate-Drain Charge	Q_{gd}			-	9	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 520 V, I_D = 3.5 A, V_{GS} = 10 V, R_g = 9.1 Ω		-	16	32	ns
Rise Time	t_r			-	18	36	
Turn-Off Delay Time	$t_{d(off)}$			-	30	60	
Fall Time	t_f			-	18	36	
Gate Input Resistance	R_g	f = 1 MHz		0.4	0.8	1.6	Ω
Drain-Source Body Diode Characteristics							
Continuous Source-Drain Diode Current	I_S	MOSFET symbol showing the integral reverse p - n junction diode 		-	-	7.9	A
Pulsed Diode Forward Current	I_{SM}			-	-	17	
Diode Forward Voltage	V_{SD}	T_J = 25 °C, I_S = 3.5 A, V_{GS} = 0 V		-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	T_J = 25 °C, I_F = I_S = 3.5 A, dI/dt = 100 A/µs, V_R = 25 V		-	299	598	ns
Reverse Recovery Charge	Q_{rr}			-	2.9	5.8	µC
Reverse Recovery Current	I_{RRM}			-	16	-	A

Notes

a. $C_{oss(er)}$ is a fixed capacitance that gives the same energy as C_{oss} while V_{DS} is rising from 0 % to 80 % V_{DSS}.

b. $C_{oss(tr)}$ is a fixed capacitance that gives the same charging time as C_{oss} while V_{DS} is rising from 0 % to 80 % V_{DSS}.

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TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

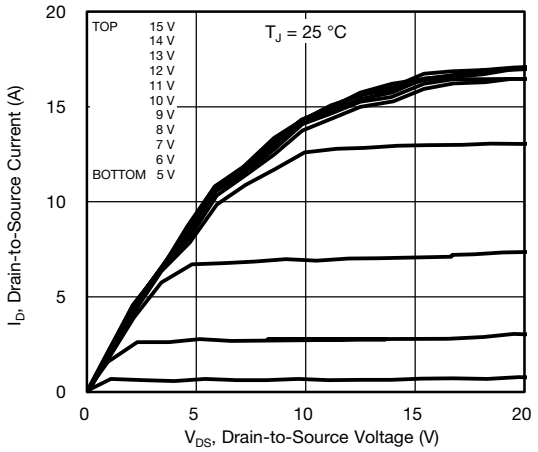


Fig. 1 - Typical Output Characteristics

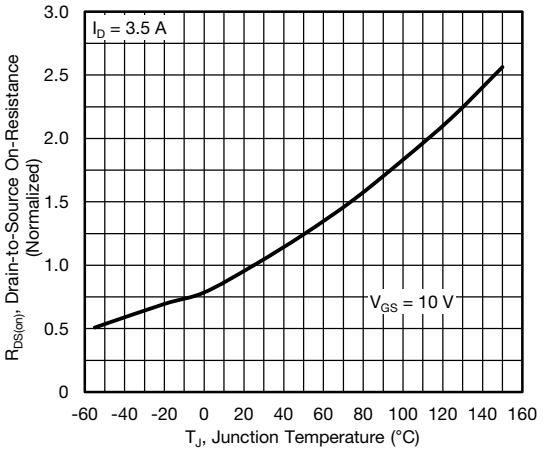


Fig. 4 - Normalized On-Resistance vs. Temperature

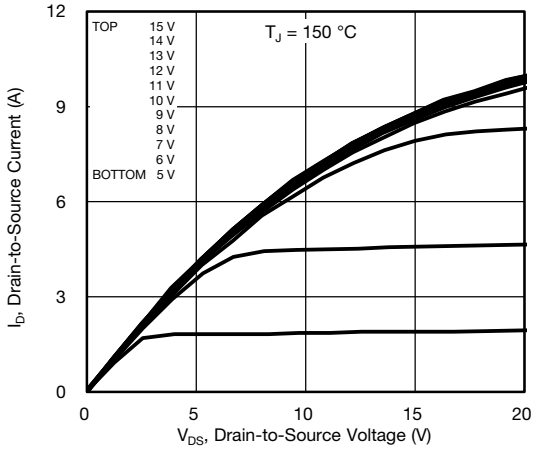


Fig. 2 - Typical Output Characteristics

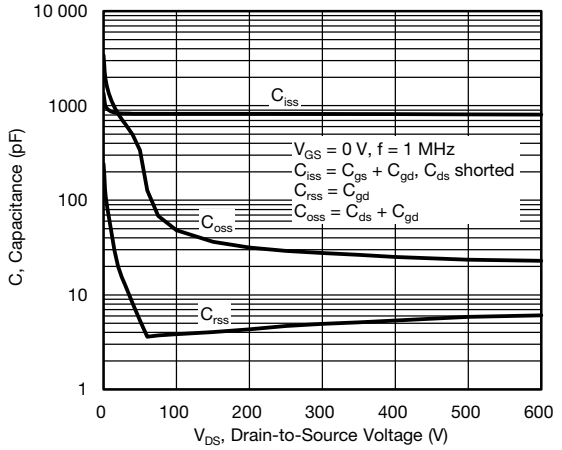


Fig. 5 - Typical Capacitance vs. Drain-to-Source Voltage

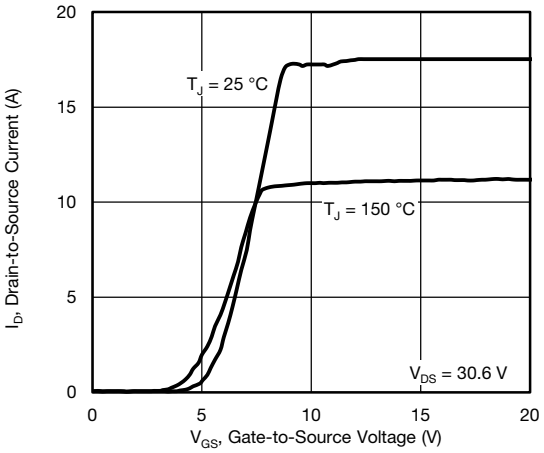


Fig. 3 - Typical Transfer Characteristics

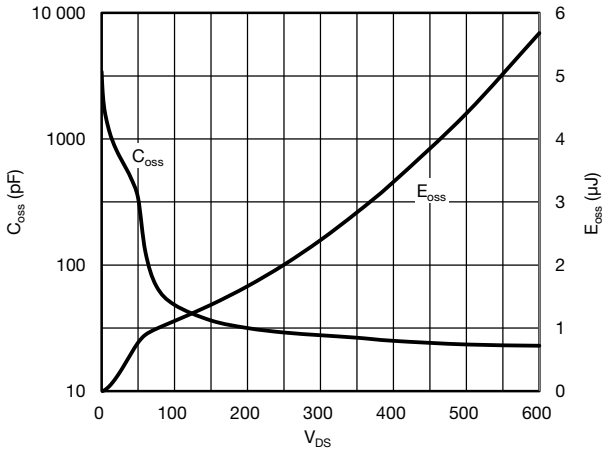


Fig. 6 - C_{oss} and E_{oss} vs. V_{DS}

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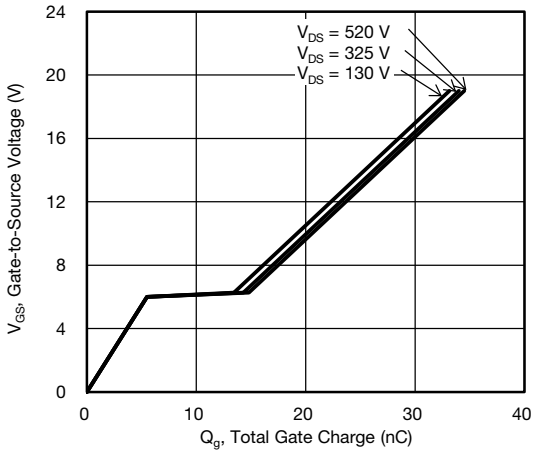


Fig. 7 - Typical Gate Charge vs. Gate-to-Source Voltage

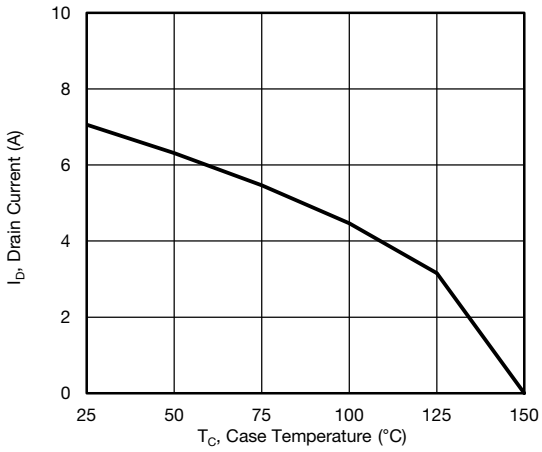


Fig. 10 - Maximum Drain Current vs. Case Temperature

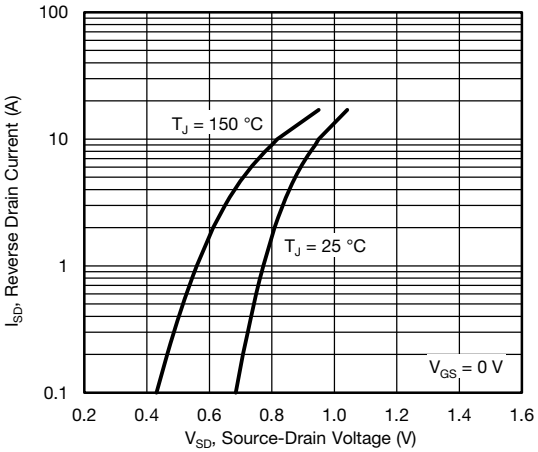


Fig. 8 - Typical Source-Drain Diode Forward Voltage

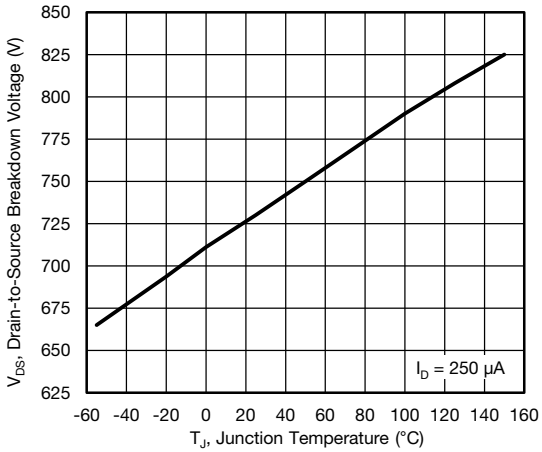


Fig. 11 - Temperature vs. Drain-to-Source Voltage

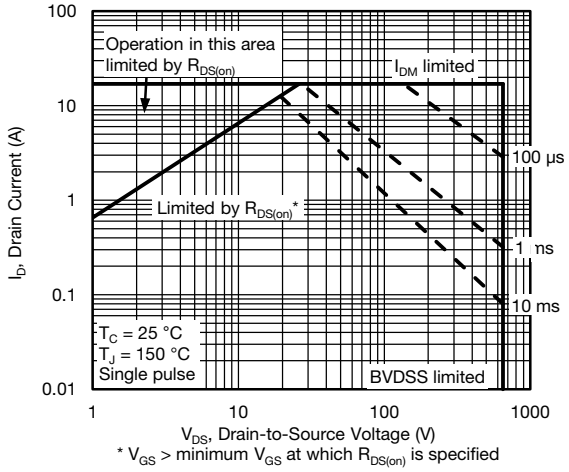


Fig. 9 - Maximum Safe Operating Area

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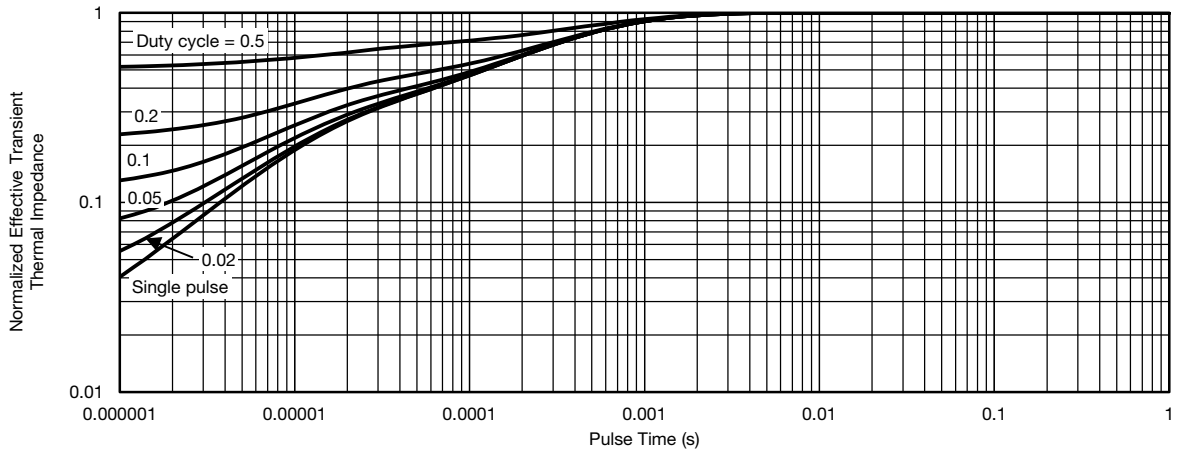


Fig. 12 - Normalized Thermal Transient Impedance, Junction-to-Case

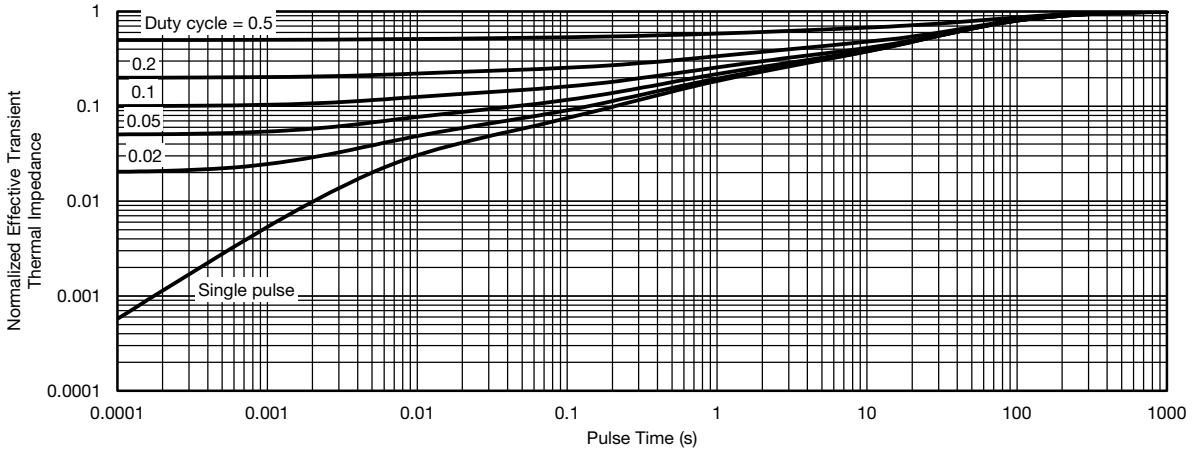


Fig. 13 - Normalized Thermal Transient Impedance, Junction-to-Ambient

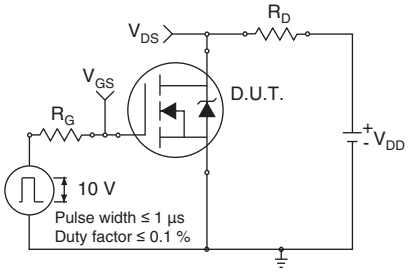


Fig. 14 - Switching Time Test Circuit

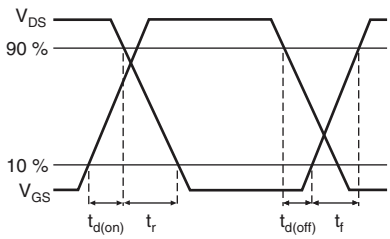


Fig. 15 - Switching Time Waveforms

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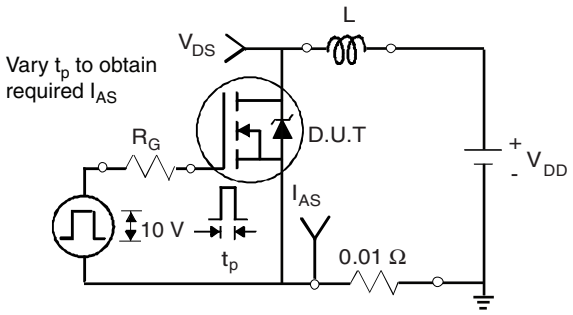


Fig. 16 - Unclamped Inductive Test Circuit

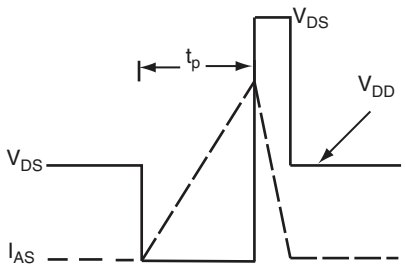


Fig. 17 - Unclamped Inductive Waveforms

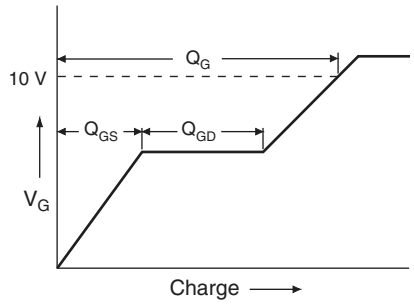


Fig. 18 - Basic Gate Charge Waveform

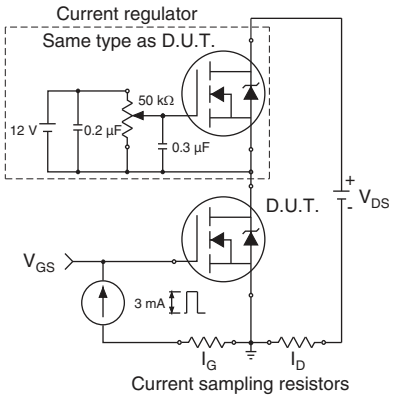
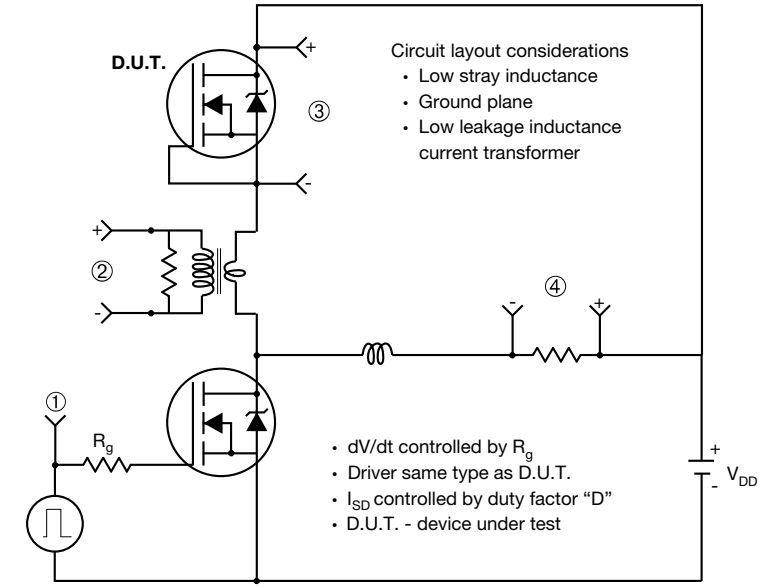
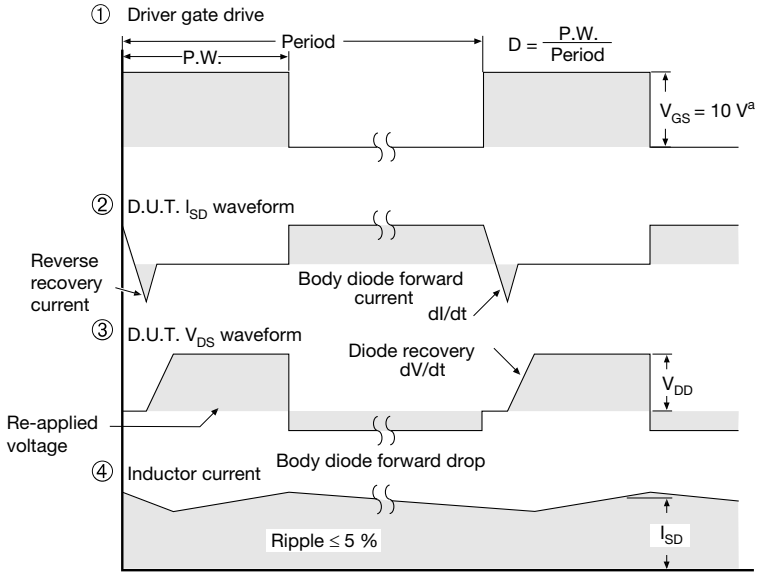


Fig. 19 - Gate Charge Test Circuit

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Peak Diode Recovery dV/dt Test Circuit





Note

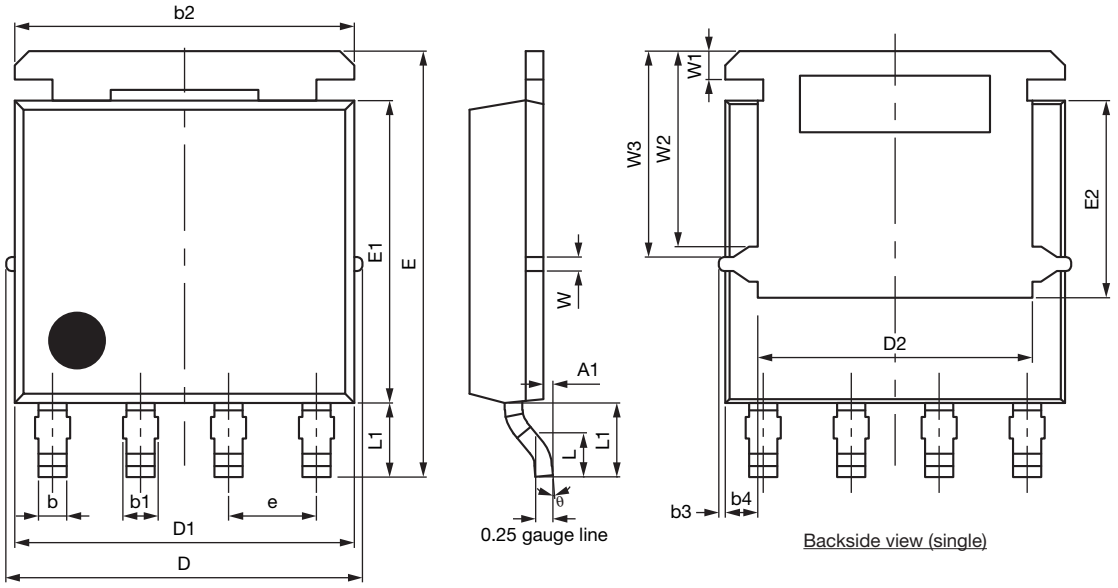
a. V_{GS} = 5 V for logic level devices

Fig. 20 - For N-Channel

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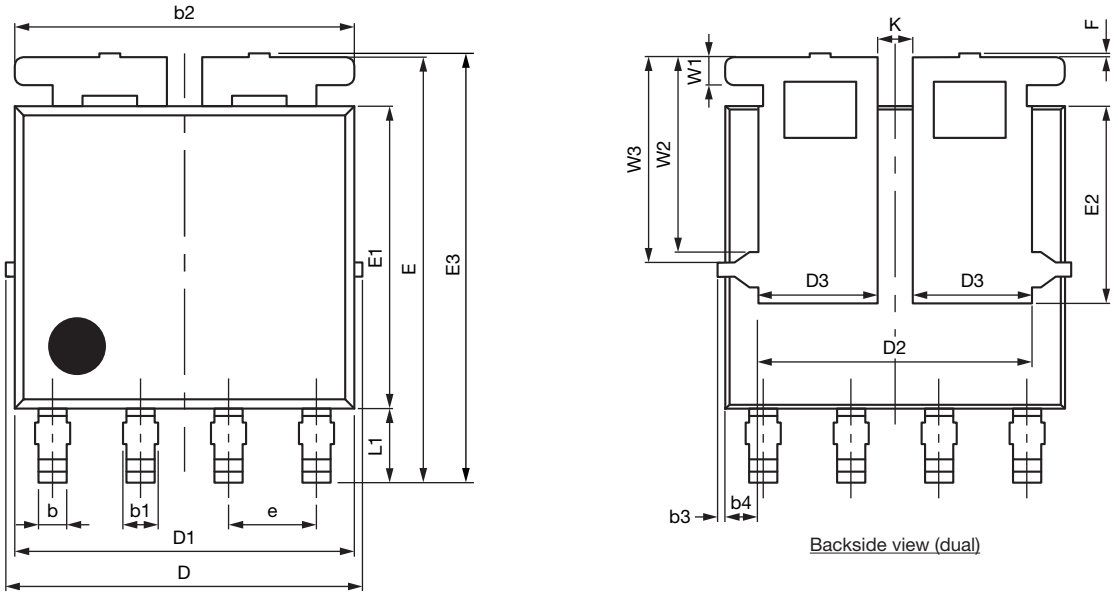
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PowerPAK® SO-8L Case Outline 2



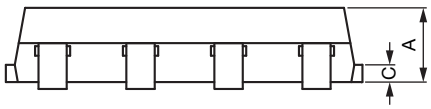
Topside view (single)

Backside view (single)



Topside view (dual)

Backside view (dual)



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DIM.	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.00	1.07	1.14	0.039	0.042	0.045
A1	0.00	-	0.127	0.00	-	0.005
b	0.33	0.41	0.48	0.013	0.016	0.019
b1	0.44	0.51	0.58	0.017	0.020	0.023
b2	4.80	4.90	5.00	0.189	0.193	0.197
b3	0.094			0.004		
b4	0.47			0.019		
c	0.20	0.25	0.30	0.008	0.010	0.012
D	5.00	5.13	5.25	0.197	0.202	0.207
D1	4.80	4.90	5.00	0.189	0.193	0.197
D2	3.86	3.96	4.06	0.152	0.156	0.160
D3	1.63	1.73	1.83	0.064	0.068	0.072
e	1.27 BSC			0.050 BSC		
E	6.05	6.15	6.25	0.238	0.242	0.246
E1	4.27	4.37	4.47	0.168	0.172	0.176
E2	2.75	2.85	2.95	0.108	0.112	0.116
E3	6.05	6.22	6.40	0.238	0.245	0.252
F	-	-	0.15	-	-	0.006
L	0.62	0.72	0.82	0.024	0.028	0.032
L1	0.92	1.07	1.22	0.036	0.042	0.048
K	0.51			0.020		
W	0.23			0.009		
W1	0.41			0.016		
W2	2.82			0.111		
W3	2.96			0.117		
θ	0°	-	10°	0°	-	10°
ECN: C23-1026-Rev. D, 25-Sep-2023 DWG: 6044						

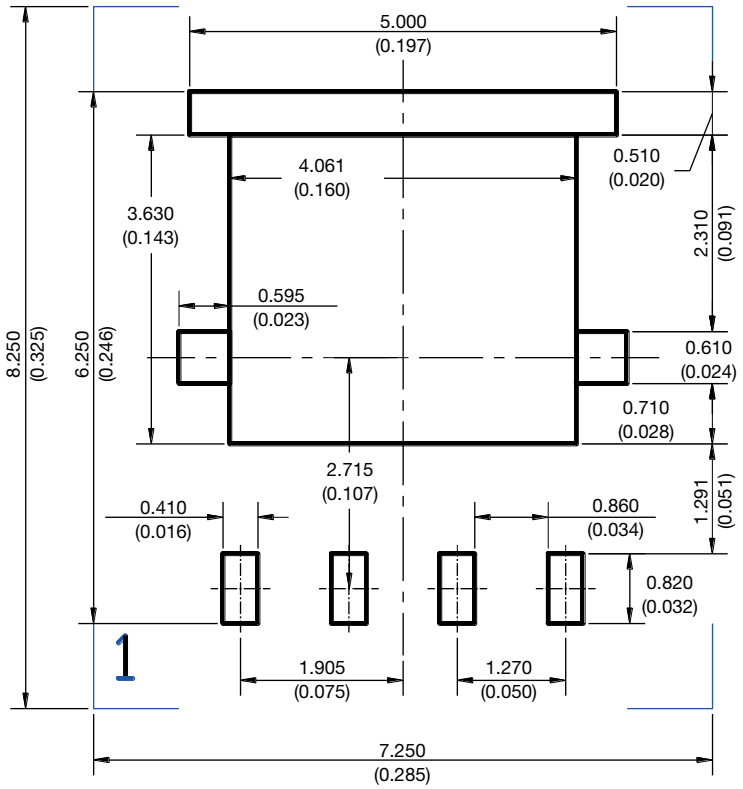
Note

- Millimeters will govern

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RECOMMENDED MINIMUM PAD FOR PowerPAK® SO-8L SINGLE



Recommended Minimum Pads
Dimensions in mm (inches)

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Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

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Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

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Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

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