FDS8935

PRODUCT SUMMARY	
V _{DS} (V)	-100
$R_{DS(on)}$ max. (Ω) at V_{GS} = -10 V	0.110
$R_{DS(on)}$ max. (Ω) at V_{GS} = -4.5 V	0.155
Q _g typ. (nC)	5.65
I _D (A)	-4.5
Configuration	Single

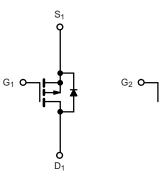
FEATURES

Dual P-Channel 100 V (D-S) MOSFET

- TrenchFET[®] power MOSFET
- 100 % R_g and UIS tested

APPLICATIONS

- Active clamp in intermediate DC/DC power supplies
- LED Lighting
- · Load switch



P-Channel MOSFET

 D_2 P-Channel MOSFET

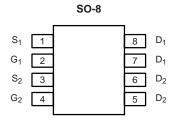
PARAMETER Drain-source voltage Gate-source voltage		SYMBOL	LIMIT	UNIT
		V _{DS}	-100	V
		V _{GS}	± 20	v
Continuous drain current (T _J = 150 °C)	T _C = 25 °C		-4.5	
	T _C = 70 °C	Ι. Γ	-3.6	
	T _A = 25 °C		-2.8 ^{b, c}	
	T _A = 70 °C		-2.1 ^{b, c}	
Pulsed drain current (t = 100 µs)		I _{DM}	-20	— A
Continuous source-drain diode current	T _C = 25 °C		-4.5 ^a	
	T _A = 25 °C	I _S	-2.8 ^{b, c}	
Single pulse avalanche current		I _{AS}	-15	
Single pulse avalanche energy	L = 0.1 mH	E _{AS}	11.25	mJ
Maximum power dissipation	T _C = 25 °C		27.8	
	T _C = 70 °C		17.8	w
	T _A = 25 °C	P _D	3.5 ^{b, c}	vv
	T _A = 70 °C		2.2 ^{b, c}	
Operating junction and storage temperature range		T _J , T _{stg}	-55 to +150	°C
Soldering recommendations (peak temperature) d, e			260	

THERMAL RESISTANCE RATINGS							
PARAMETER		SYMBOL	TYPICAL	MAXIMUM	UNIT		
Maximum junction-to-ambient b, f	t ≤ 10 s	R _{thJA}	29	36	°C/W		
Maximum junction-to-case (drain)	Steady state	R _{thJC}	3.6	4.6	0/10		



 S_2 0





Top View

FDS8935

	SPECIFICATIONS ($T_J = 25 \ ^{\circ}C$, u	SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)								
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT			
$\begin{split} & V_{DS} \mbox{ temperature coefficient} & \Delta V_{DS} / V_{J} & I_{D} = -250 \ \mu A & -1 & -2.6 & V_{CS} \\ & - & 4.2 & - & -4.2 & - & -4.2 & - & -4.2 & - & -4.2 & - & -4.2 & - & -4.2 & - & -4.2 & - & -4.2 & - & -4.2 & - & -& -& -& -& -& -& -& -& -& -& -& $	Static									
$\begin{split} & V_{\text{SS(h)}} \text{ temperature coefficient} & \Delta V_{\text{SS(h)}}/T_J & V_D = 2.0 \ \mu\text{A} & -4.2 & -4.0 \ \mu\text{MV}^{-1} \\ & Gate-source threshold voltage & V_{GS(h)} & V_DS = V_{GS(h)} = -250 \ \mu\text{A} & -1.1 & -2.6 & V \\ & V_DS = 0 V, V_{DS} = 0 V, V_{DS} = 2 V & - & -1 & 1 \ \mu\text{A} \\ & V_{DS} = 0 V, V_{DS} = 0 V, V_{DS} = 2 V & - & -1 & 1 \ \mu\text{A} \\ & V_{DS} = -100 V, V_{OS} = 0 V, V_{-1} = 70 \ ^{\circ}C & - & -10 & \mu\text{A} \\ & V_{DS} = -100 V, V_{OS} = 0 V, V_{-1} = 70 \ ^{\circ}C & - & -10 & \mu\text{A} \\ & V_{DS} = -100 V, V_{OS} = 0 V, V_{-1} = 70 \ ^{\circ}C & - & -10 & \mu\text{A} \\ & V_{DS} = -100 V, V_{OS} = 0 V, V_{-1} = 70 \ ^{\circ}C & - & -10 & \mu\text{A} \\ & V_{DS} = -100 V, V_{OS} = 0 V, V_{-1} = 70 \ ^{\circ}C & - & -10 & \mu\text{A} \\ & V_{DS} = -100 V, V_{OS} = 0 V, V_{-1} = 70 \ ^{\circ}C & - & -10 & \mu\text{A} \\ & V_{DS} = -10 V, V_{DS} = -10 V, V_{DS} = -3.8 \ ^{\circ}A & - & 0.110 & 0.132 & \mu\text{A} \\ & V_{DS} = -4.5 V, V_{DS} = -10 \ ^{\circ}V, V_{DS} = -3.8 \ ^{\circ}A & - & 0.155 & 0.186 & \mu\text{A} \\ & V_{DS} = -50 \ ^{\circ}V, V_{OS} = -10 \ ^{\circ}V, V_{DS} = -3.8 \ ^{\circ}A & - & 100 & - & - & - & - & - & - & - & - & - &$	Drain-source breakdown voltage	V _{DS}	$V_{GS} = 0 \text{ V}, \text{ I}_{D} = -250 \mu\text{A}$	-100	-	-	V			
$\begin{split} & & \text{Vagm} \text{ temperature coefficient} & & \text{VAggm/T}_{0} & \text{Vage Vage, Ip = -250 μA} & -1.1 & - & -2.6 & \text{V} \\ & & \text{Gate-source threshold voltage} & & \text{Vage}_{0} & \text{Vage Vage}_{0} & - & - & - & +100 & \text{nA} \\ \hline & & \text{Vage particle leakage} & & \text{Iggs} & & \text{Vage particle}_{0} & - & - & - & -1 & \\ & & \text{Vage particle}_{0} & & \text{Vage particle}_{0} & - & - & - & -1 & \\ & & \text{Vage particle}_{0} & & \text{Vage particle}_{0} & - & - & - & -1 & \\ & & \text{Vage particle}_{0} & & \text{Vage particle}_{0} & - & - & - & -1 & \\ & & \text{Vage particle}_{0} & & \text{Vage particle}_{0} & - & - & - & - & -1 & \\ & & \text{Vage particle}_{0} & & \text{Vage particle}_{0} & - & - & - & - & - & - & - & - & - & $	V _{DS} temperature coefficient	$\Delta V_{DS}/T_{J}$	L 050 A	-	-63	-	mV/°C			
	V _{GS(th)} temperature coefficient	$\Delta V_{GS(th)}/T_J$	ι _D = -250 μΑ	-	4.2	-				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Gate-source threshold voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_D = -250 \ \mu A$	-1.1	-	-2.6	V			
	Gate-source leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$	-	-	± 100	nA			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Zero gate voltage drain current	I _{DSS}	$V_{DS} = -100 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$	-	-	-1				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			V _{DS} = -100 V, V _{GS} = 0 V, T _J = 70 °C	-	-	-10	μΑ			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	On-state drain current ^a	I _{D(on)}	$V_{DS} \ge -10 \text{ V}, \text{ V}_{GS} = -10 \text{ V}$	-15	-	-	А			
$\begin{array}{ c c c c c c c c c c } & V_{GS} = -4.5 \ V, \ V_{D} = -3.2 \ A & - & 0.155 & 0.186 \\ \hline \\ \hline Forward transconductance a & g_{fs} & V_{DS} = -10 \ V, \ V_{D} = -3.8 \ A & - & 8 & - & S \\ \hline \\ \hline Dynamic b & & & & & & & & & & & & & & & & & & $	Drain-source on-state resistance ^a	_	V _{GS} = -10 V, I _D = -3.8 A	-	0.110	0.132				
Dynamic b Input capacitance C_{iss} $V_{DS} = -50 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$ $ 515$ $ pF$ Reverse transfer capacitance C_{rss} $V_{DS} = -50 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$ $ 162$ $ pF$ Total gate charge Q_g $V_{DS} = -50 \text{ V}, V_{GS} = -10 \text{ V}, I_D = -3.8 \text{ A}$ $ 10.9$ 16.5 $ 5.65$ 8.5 nC Gate-source charge Q_{gd} $V_{DS} = -50 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -3.8 \text{ A}$ $ 1.7$ $ 10.9$ 16.5 8.5 nC Gate-drain charge Q_{gd} $V_{DS} = -50 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -3.8 \text{ A}$ $ 1.7$ $ 10.9$ 18.5 nC Gate resistance R_g $f = 1 \text{ MHz}$ 1.96 9.8 19.6 Ω Turn-on delay time $t_d(orn)$ $V_{DD} = -50 \text{ V}, R_L = 16.1 \Omega, I_D = -3.1 \text{ A},$ $ 20$ 400 $ 22$ 400 $ 22$ 400 $ 22$ 400		R _{DS(on)}	V _{GS} = -4.5 V, I _D = -3.2 A	-	0.155	0.186	52			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Forward transconductance ^a	9 _{fs}	V _{DS} = -10 V, I _D = -3.8 A	-	8	-	S			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Dynamic ^b		•		•	•				
Reverse transfer capacitance Crss - 10 - 10 - Total gate charge Q_g $V_{DS} = -50 \text{ V}, V_{GS} = -10 \text{ V}, I_D = -3.8 \text{ A}$ - 10.9 16.5 R R - 5.65 8.5 R R - 5.65 8.5 R - 10.9 16.5 R R - 5.65 8.5 R - 1.7 - 10 - 2.5 - - 10.9 16.5 R R - 1.7 - 10.9 16.5 R R - 1.7 - 10 2.0 R R - 1.7 - 10 2.0 R R - 10.6 R R - 10.6 1.0 R R - 10.6 R R - 10 10 2.0 R R R R R R - 10.6 10 10 10 R R	Input capacitance	C _{iss}	V _{DS} = -50 V, V _{GS} = 0 V, f = 1 MHz	-	515	-	pF			
$ \begin{array}{c c c c c c c c c } Total gate charge & Q_g & V_{DS} = -50 \ V, \ V_{GS} = -10 \ V, \ I_D = -3.8 \ A & - & 10.9 & 16.5 \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	Output capacitance	C _{oss}		-	162	-				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Reverse transfer capacitance	C _{rss}		-	10	-				
Gate-source charge Q_{gs} $V_{DS} = -50 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -3.8 \text{ A}$ $ 1.7$ $ 1.7$ $ 1.7$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.7$ $ 2.5$ $ 1.6$ 9.8 19.6 Ω Turn-on delay time td _(off) t t $V_{DD} = -50 \text{ V}, R_L = 16.1 \Omega, I_D \cong -3.1 \text{ A},$ $ 20$ 40 00 $ 20$ 40 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Total gate charge	Qg	$V_{DS} = -50 \text{ V}, \text{ V}_{GS} = -10 \text{ V}, \text{ I}_{D} = -3.8 \text{ A}$	-	10.9	16.5	nC			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $				-	5.65	8.5				
$ \begin{array}{c c c c c c c c c c } \hline Gate resistance & R_g & f = 1 \ \text{MHz} & 1.96 & 9.8 & 19.6 & \Omega \\ \hline \mbox{Turn-on delay time} & t_{d(on)} \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-off delay time} & t_{d(off)} & \\ \hline \mbox{Fall time} & t_f & \\ \hline \mbox{Turn-on delay time} & t_{d(on)} & \\ \hline \mbox{Rise time} & t_f & \\ \hline \mbox{Turn-on delay time} & t_{d(on)} & \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-on delay time} & t_{d(on)} & \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-on delay time} & t_{d(on)} & \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-off delay time} & t_{d(on)} & \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-off delay time} & t_{d(off)} & \\ \hline \mbox{Turn-off delay time} & t_{d(off)} & \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-off delay time} & t_{d(off)} & \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-off delay time} & t_{d(off)} & \\ \hline \mbox{Rise time} & t_r & \\ \hline \mbox{Turn-off delay time} & t_{d(off)} & \\ \hline \mbox{Fall time} & t_r & \\ \hline \mbox{Pall time} & t_r & \\ \hline \mbox{Pulse diode forward current} & I_S & \hline \mbox{Tc} = 25 \ ^{\circ}\C & - & - & -16 & \\ \hline \mbox{Pulse diode reverse recovery time} & t_{rr} & \\ \hline \mbox{Body diode reverse recovery time} & t_{rr} & \\ \hline \mbox{Body diode reverse recovery charge} & \ \mbox{Q}_{rr} & \\ \hline \mbox{Reverse recovery fall time} & t_a & \\ \hline \mbox{Il} = -3.1 \ \mbox{A}, \ \mbox{A}/\ \mbox{A}/\ \mbox{Body}, \ \mbox{A}/\ \mbox{Body}, \ \mbox{A}/\ \ \mbox{Body}, \ \mbox{A}/\ \ \ \mbox{Body}, \ \ \mbox{Body}, \ \ \mbox{Body}, \ \ \mbox{Body}, \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	Gate-source charge	Q _{gs}		-	1.7	-				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Gate-drain charge	Q _{gd}		-	2.5	-				
Rise time tr t_r $V_{DD} = -50 \text{ V}, \text{ R}_L = 16.1 \Omega, \text{ I}_D \cong -3.1 \text{ A}, \ V_{GEN} = -10 \text{ V}, \text{ R}_g = 1 \Omega$ $ 22$ 40 Fall time tf $V_{GEN} = -10 \text{ V}, \text{ R}_g = 1 \Omega$ $ 20$ 40 Fall time tf $V_{OD} = -50 \text{ V}, \text{ R}_L = 16.1 \Omega, \text{ I}_D \cong -3.1 \text{ A}, \ V_{GEN} = -20$ $ 20$ 40 Fall time tf $V_{DD} = -50 \text{ V}, \text{ R}_L = 16.1 \Omega, \text{ I}_D \cong -3.1 \text{ A}, \ V_{GEN} = -4.5 \text{ V}, \text{ R}_g = 1 \Omega$ $ 40$ 60 Turn-off delay time t_d(off) $V_{DD} = -50 \text{ V}, \text{ R}_L = 16.1 \Omega, \text{ I}_D \cong -3.1 \text{ A}, \ V_{GEN} = -4.5 \text{ V}, \text{ R}_g = 1 \Omega$ $ 40$ 60 Turn-off delay time t_d(off) $V_{DD} = -50 \text{ V}, \text{ R}_L = 16.1 \Omega, \text{ I}_D \cong -3.1 \text{ A}, \ V_{GEN} = -4.5 \text{ V}, \text{ R}_g = 1 \Omega$ $ 40$ 60 Fall time tf $V_{DD} = -50 \text{ V}, \text{ R}_L = 16.1 \Omega, \text{ I}_D \cong -3.1 \text{ A}, \ V_{GEN} = -3.1 \text{ A}, \text{ V}_{GEN} = 0 \text{ V}$ $ 1622$ 40 Drain-Source Body Diode Characteristics $ -$ <td>Gate resistance</td> <td>R_g</td> <td>f = 1 MHz</td> <td>1.96</td> <td>9.8</td> <td>19.6</td> <td>Ω</td>	Gate resistance	R _g	f = 1 MHz	1.96	9.8	19.6	Ω			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Turn-on delay time	t _{d(on)}		-	10	20	ns			
$ \begin{array}{c c c c c c c c } \hline Fall time & t_{f} & & & \hline & \hline & & \hline & & \hline \hline & \hline & \hline & \hline \hline & \hline & \hline \hline & \hline \hline \hline & \hline \hline \hline & \hline \hline & \hline \hline & \hline \hline &$	Rise time	t _r	V _{DD} = -50 V, R _L = 16.1 Ω, I _D ≅ -3.1 A,	-	22	40				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Turn-off delay time	t _{d(off)}	V_{GEN} = -10 V, R_g = 1 Ω	-	20	40				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Fall time	t _f		-	20	40				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Turn-on delay time	t _{d(on)}		-	35	55				
Fall timett-162240Drain-Source Body Diode CharacteristicsContinuous source-drain diode currentIs $T_C = 25 \ ^{\circ}C$ 16APulse diode forward currentIs $T_C = 25 \ ^{\circ}C$ 6Pulse diode forward currentIs $I_S = -3.1 \ A, V_{GS} = 0 \ V$ 16ABody diode voltage V_{SD} $I_S = -3.1 \ A, V_{GS} = 0 \ V$ 0.8-1.2VBody diode reverse recovery time t_{rr} $I_F = -3.1 \ A, di/dt = 100 \ A/\mus, T_J = 25 \ ^{\circ}C$ -80120nCReverse recovery fall time t_a $I_F = -3.1 \ A, di/dt = 100 \ A/\mus, T_J = 25 \ ^{\circ}C$ -36-ns	Rise time			-	40	60				
Drain-Source Body Diode CharacteristicsContinuous source-drain diode currentIs $T_C = 25 \ ^{\circ}C$ 16APulse diode forward currentIsM15ABody diode voltage V_{SD} $I_S = -3.1 \ A$, $V_{GS} = 0 \ V$ 0.8-1.2VBody diode reverse recovery time t_{rr} $I_F = -3.1 \ A$, di/dt = 100 A/µs, $T_J = 25 \ ^{\circ}C$ -80120nCReverse recovery fall time t_a T_a T_a -36-ns	Turn-off delay time	t _{d(off)}		-	22	40				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Fall time	t _f		-	1622	40				
Pulse diode forward currentI I SMABody diode voltageV SDI I S = -3.1 A, VGS = 0 V15VBody diode reverse recovery time t_{rr} Body diode reverse recovery charge Q_{rr} Reverse recovery fall time t_a	Drain-Source Body Diode Characteristi	cs	•		•	•				
Pulse diode forward current I_{SM} 15Body diode voltage V_{SD} $I_S = -3.1 \text{ A}, V_{GS} = 0 \text{ V}$ 0.8-1.2VBody diode reverse recovery time t_{rr} Body diode reverse recovery charge Q_{rr} Reverse recovery fall time t_a	Continuous source-drain diode current	IS	T _C = 25 °C	-	-	-16	^			
Body diode reverse recovery time t_{rr} Body diode reverse recovery charge Q_{rr} Reverse recovery fall time t_a	Pulse diode forward current	I _{SM}		-	-	-15	А			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Body diode voltage	V _{SD}	I _S = -3.1 A, V _{GS} = 0 V	-	-0.8	-1.2	V			
$I_{F} = -3.1 \text{ A, } \text{ di/dt} = 100 \text{ A/}\mu\text{s, } \text{T}_{J} = 25 \text{ °C}$	Body diode reverse recovery time	1		-	43	65	ns			
Reverse recovery fall time t _a - 36 - ns	Body diode reverse recovery charge	Q _{rr}		-	80	120	nC			
ns ns	Reverse recovery fall time	t _a	$I_F = -3.1 \text{ A}, \text{ dl/dt} = 100 \text{ A/}\mu\text{s}, I_J = 25 \text{ °C}$	-	36	-	ns			
	Reverse recovery rise time		1	-	7	-				

Notes

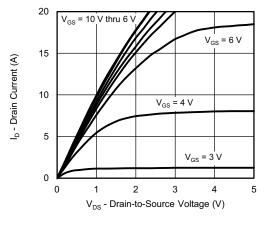
a. Pulse test; pulse width \leq 300 µs, duty cycle \leq 2 %

b. Guaranteed by design, not subject to production testing

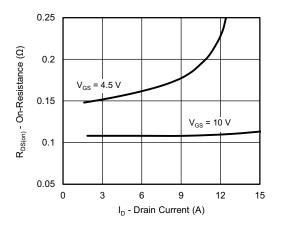
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

emi

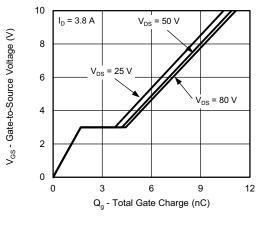




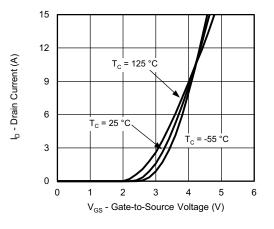
Output Characteristics



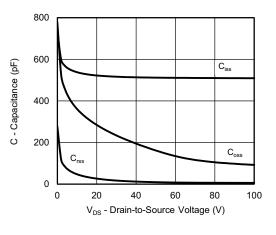
On-Resistance vs. Drain Current and Gate Voltage



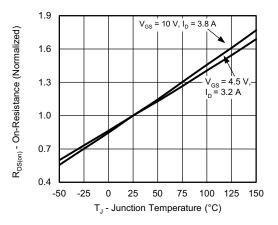
Gate Charge



Transfer Characteristics

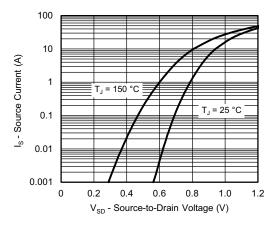


Capacitance

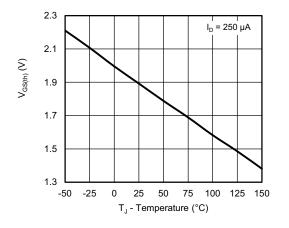


On-Resistance vs. Junction Temperature

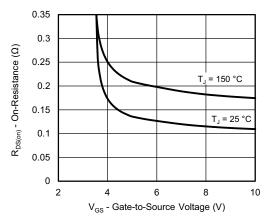




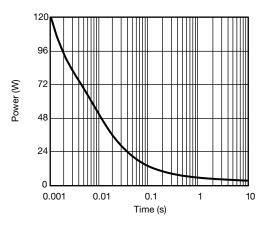
Source-Drain Diode Forward Voltage



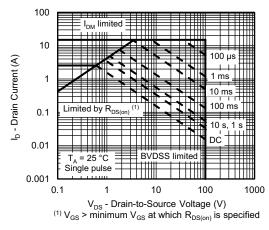
Threshold Voltage



On-Resistance vs. Gate-to-Source Voltage

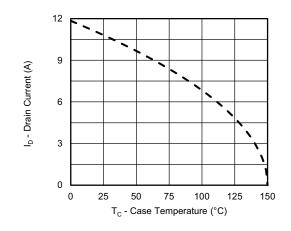


Single Pulse Power, Junction-to-Ambient

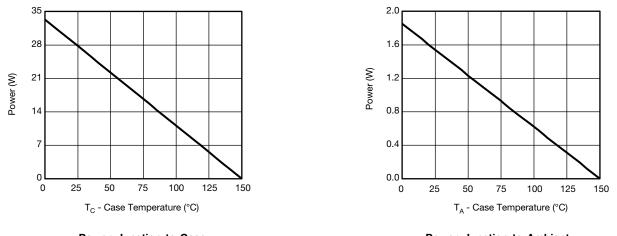


Safe Operating Area, Junction-to-Ambient





Current Derating ^a



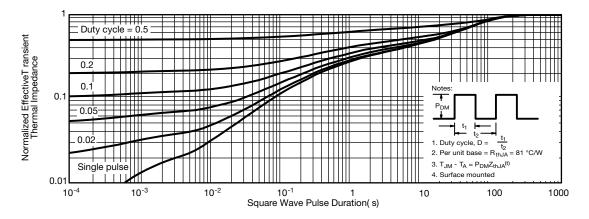
Power, Junction-to-Case

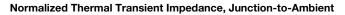
Power, Junction-to-Ambient

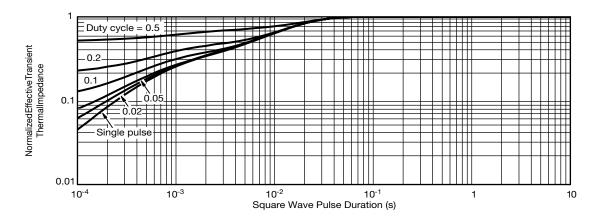
Note

a. The power dissipation P_D is based on T_J max. = 150 °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.









Normalized Thermal Transient Impedance, Junction-to-Case



Disclaimer

All products due to improve reliability, function or design or for other reasons, product specifications and data are subject to change without notice.

Taiwan VBsemi Electronics Co., Ltd., branches, agents, employees, and all persons acting on its or their representatives (collectively, the "Taiwan VBsemi"), assumes no responsibility for any errors, inaccuracies or incomplete data contained in the table or any other any disclosure of any information related to the product.(www.VBsemi.com)

Taiwan VBsemi makes no guarantee, representation or warranty on the product for any particular purpose of any goods or continuous production. To the maximum extent permitted by applicable law on Taiwan VBsemi relinquished: (1) any application and all liability arising out of or use of any products; (2) any and all liability, including but not limited to special, consequential damages or incidental; (3) any and all implied warranties, including a particular purpose, non-infringement and merchantability guarantee.

Statement on certain types of applications are based on knowledge of the product is often used in a typical application of the general product VBsemi Taiwan demand that the Taiwan VBsemi of. Statement on whether the product is suitable for a particular application is non-binding. It is the customer's responsibility to verify specific product features in the products described in the specification is appropriate for use in a particular application. Parameter data sheets and technical specifications can be provided may vary depending on the application and performance over time. All operating parameters, including typical parameters must be made by customer's technical experts validated for each customer application. Product specifications do not expand or modify Taiwan VBsemi purchasing terms and conditions, including but not limited to warranty herein.

Unless expressly stated in writing, Taiwan VBsemi products are not intended for use in medical, life saving, or life sustaining applications or any other application. Wherein VBsemi product failure could lead to personal injury or death, use or sale of products used in Taiwan VBsemi such applications using client did not express their own risk. Contact your authorized Taiwan VBsemi people who are related to product design applications and other terms and conditions in writing.

The information provided in this document and the company's products without a license, express or implied, by estoppel or otherwise, to any intellectual property rights granted to the VBsemi act or document. Product names and trademarks referred to herein are trademarks of their respective representatives will be all.

Material Category Policy

Taiwan VBsemi Electronics Co., Ltd., hereby certify that all of the products are determined to be RoHS compliant and meets the definition of restrictions under Directive of the European Parliament 2011/65 / EU, 2011 Nian. 6. 8 Ri Yue restrict the use of certain hazardous substances in electrical and electronic equipment (EEE) - modification, unless otherwise specified as inconsistent.(www.VBsemi.com)

Please note that some documents may still refer to Taiwan VBsemi RoHS Directive 2002/95 / EC. We confirm that all products identified as consistent with the Directive 2002/95 / EC European Directive 2011/65 /.

Taiwan VBsemi Electronics Co., Ltd. hereby certify that all of its products comply identified as halogen-free halogen-free standards required by the JEDEC JS709A. Please note that some Taiwanese VBsemi documents still refer to the definition of IEC 61249-2-21, and we are sure that all products conform to confirm compliance with IEC 61249-2-21 standard level JS709A.