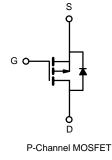


### 2SJ660-VB Datasheet

## P-Channel 60 V (D-S) MOSFET

PRODUCT SUMMARY			
V <sub>DS</sub> (V)	R <sub>DS(on)</sub> (Ω) Max.	I <sub>D</sub> (A)	Q <sub>g</sub> (Typ.)
- 60	0.048at V <sub>GS</sub> = - 10 V	- 35	60
- 00	0.060at V <sub>GS</sub> = - 4.5 V	- 30	00





#### FEATURES

- Halogen-free According to IEC 61249-2-21
   Definition
- Trench Power MOSFET
- 100 % R<sub>q</sub> and UIS Tested
- Compliant to RoHS Directive 2002/95/EC

#### **APPLICATIONS**

- Power Switch
- Load Switch in High Current Applications
- DC/DC Converters

ABSOLUTE MAXIMUM RATINGS	(T <sub>C</sub> = 25 °C, unless oth	nerwise noted)		
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V <sub>DS</sub>	- 60	V	
Gate-Source Voltage	V <sub>GS</sub>	± 20	v	
Continuous Drain Current ( $T_1 = 150 \ ^{\circ}C$ )	T <sub>C</sub> = 25 °C	I <sub>D</sub>	- 35	
Continuous Drain Current (1) = 150°C)	T <sub>C</sub> = 70 °C	D	- 30	A
Pulsed Drain Current (t = 300 µs)	I <sub>DM</sub>	I <sub>DM</sub> - 100 I <sub>AS</sub> - 32		
Avalanche Current	I <sub>AS</sub>			
Single Avalanche Energy <sup>a</sup>	L = 0.1 mH	E <sub>AS</sub>	51	mJ
	T <sub>C</sub> = 25 °C	P	61 <sup>b</sup>	
Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> = 25 °C <sup>c</sup>	– P <sub>D</sub> –	6.1	W
Operating Junction and Storage Temperature Ra	T <sub>J</sub> , T <sub>stg</sub>	- 55 to 150	°C	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Limit	Unit		
Junction-to-Ambient (PCB Mount) <sup>c</sup>	R <sub>thJA</sub>	60	°C/W		
Junction-to-Case (Drain)	R <sub>thJC</sub>	3	C/VV		

Notes:

a. Duty cycle  $\leq$  1 %.

b. See SOA curve for voltage derating.

c. When mounted on 1" square PCB (FR-4 material).



$\begin{array}{ c c c c c c } \hline Parameter & Symbol & Test Conditions & Min. & Typ. & Max. & Unit \\ \hline Static & & & & & & & & & & & & & & & & & & &$	<b>SPECIFICATIONS</b> (T <sub>J</sub> = 25 °C, unless otherwise noted)						
$\begin{array}{ c c c c c c } \hline Drain-Source Breakdown Voltage V_{DS} & V_{DS} = 0 V, I_{D} = -250 \ \mu A & -60 & & V \\ \hline Gate Threshold Voltage V_{GS(th)} & V_{DS} = 0 V, V_{GS} = -250 \ \mu A & -1 & -2.5 & A \\ \hline Gate Body Leakage & I_{GSS} & V_{DS} = 0 V, V_{GS} = 20 V & & \pm 250 & A \\ \hline Gate Body Leakage & I_{GSS} & V_{DS} = -60 V, V_{GS} = 20 V & & \pm 250 & A \\ \hline V_{DS} = -60 V, V_{GS} = 0 V, T_{J} = 125 \ c & & -50 & V \\ \hline V_{DS} = -60 V, V_{GS} = 0 V, T_{J} = 125 \ c & & -250 & A \\ \hline V_{DS} = -60 V, V_{GS} = 0 V, T_{J} = 150 \ c & & -250 & A \\ \hline V_{DS} = -60 V, V_{GS} = 0 V, T_{J} = 150 \ c & & -250 & A \\ \hline V_{DS} = -60 V, V_{GS} = 0 V, T_{J} = 150 \ c & & -250 & A \\ \hline Drain-Source On-State Resistance^a P_{DS}(on) & V_{DS} = -10 V, I_{D} = -14 A & 0.048 & & \\ \hline V_{GS} = -10 V, I_{D} = -12 A & 0.060 & & & \\ \hline V_{OS} = -20 V, I_{D} = -14 A & 0.048 & & \\ \hline V_{OS} = -20 V, I_{D} = -14 A & 0.006 & & \\ \hline Drain-Source On-State Resistance & C_{iss} & & \\ \hline Duptu Capacitance & C_{iss} & & \\ \hline Duptu Capacitance & C_{iss} & & \\ \hline Cutput Capacitance & C_{iss} & & \\ \hline Cate Courge^c & Q_g & & \\ \hline Cate Courge^c & Q_g & & \\ \hline Cate Courge^c & Q_g & & \\ \hline Cate Courge^c & Q_{gg} & & \\ \hline Cate Reverse Transfer Capacitance & C_{iss} & & \\ \hline Cutpun Charge^c & Q_g & & \\ \hline Cate Reverse Charge^c & Q_g & & \\ \hline Cate Reverse Charge^c & I_{0}(on) & \\ \hline Rise Time^c & t_{1} & & \\ \hline U_{D} = -30 V, V_{GS} = -10 V, I_{D} = -14 A & & \\ \hline D_{D} = -10 A, V_{GS} = -10 V, R_g = 1 \Omega & & \\ \hline D_{1} = -10 A, V_{GS} = 1 DV, R_g = 1 \Omega & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V & & \\ \hline D_{1} = -10 A, V_{GS} = 0 V &$	Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
$ \begin{array}{ c c c c c c } \hline {\rm Gate Threshold Voltage} & V_{\rm GS(th)} & V_{\rm DS} = V_{\rm GS}, I_{\rm D} = -250 \ \mu {\rm A} & -1 & -2.5 & V \\ \hline {\rm Gate-Body Leakage} & I_{\rm GSS} & V_{\rm DS} = 0 \ V, V_{\rm GS} = 2 \ 0 \ V & 2 \ 50 & {\rm nA} \\ \hline {\rm V}_{\rm DS} = -60 \ V, V_{\rm GS} = 0 \ V, T_{\rm J} = 125 \ C & -50 & {\rm nA} \\ \hline {\rm V}_{\rm DS} = -60 \ V, V_{\rm GS} = 0 \ V, T_{\rm J} = 125 \ C & -50 & {\rm nA} \\ \hline {\rm V}_{\rm DS} = -60 \ V, V_{\rm GS} = 0 \ V, T_{\rm J} = 125 \ C & -50 & {\rm nA} \\ \hline {\rm V}_{\rm DS} = -60 \ V, V_{\rm GS} = 0 \ V, T_{\rm J} = 125 \ C & -50 & {\rm nA} \\ \hline {\rm V}_{\rm DS} = -60 \ V, V_{\rm GS} = 0 \ V, T_{\rm J} = 150 \ C & -250 & {\rm nA} \\ \hline {\rm V}_{\rm DS} = -60 \ V, V_{\rm GS} = 0 \ V, T_{\rm J} = 150 \ C & -250 & {\rm nA} \\ \hline {\rm N}_{\rm DS} = -60 \ V, V_{\rm GS} = 0 \ V, T_{\rm J} = 150 \ C & -250 & {\rm nA} \\ \hline {\rm N}_{\rm DS} = -10 \ V, I_{\rm D} = -14 \ A & 0 \ 0.048 & {\rm nA} \\ \hline {\rm N}_{\rm GS} = -10 \ V, I_{\rm D} = -14 \ A & 0 \ 0.060 & {\rm nA} \\ \hline {\rm N}_{\rm SS} = -10 \ V, I_{\rm D} = -14 \ A & 0 \ 0.060 & {\rm nA} \\ \hline {\rm N}_{\rm SS} = -10 \ V, I_{\rm D} = -10 \ A \ 0.060 & {\rm nA} \\ \hline {\rm N}_{\rm SS} = -30 \ V, I_{\rm D} = -10 \ A \ 0.060 & {\rm nA} \\ \hline {\rm N}_{\rm SS} = -30 \ V, I_{\rm D} = -10 \ A \ 0.060 & {\rm nA} \\ \hline {\rm N}_{\rm SS} = -10 \ V, I_{\rm D} = -10 \ A \ 0.0060 & {\rm nA} \\ \hline {\rm N}_{\rm SS} = -10 \ V, I_{\rm D} = -14 \ A & 40 & {\rm nC} \\ \hline {\rm N}_{\rm SS} = -30 \ V, V_{\rm DS} = -30 \ V, I_{\rm D} = -14 \ A & 13.5 \ {\rm nC} \\ \hline {\rm N}_{\rm DS} = -30 \ V, V_{\rm SS} = -30 \ V, I_{\rm D} = -14 \ A & 13.5 \ {\rm nC} \\ \hline {\rm Cate Charge}^{\circ} \ Q_{\rm Qg} & {\rm f} = 1 \ {\rm MHz} & 0.5 \ 2.5 \ 5 \ \Omega \\ \hline {\rm Gate Charge}^{\circ} \ Q_{\rm Qg} & {\rm f} = 1 \ {\rm MHz} & 0.5 \ 2.5 \ 5 \ \Omega \\ \hline {\rm N}_{\rm DS} = -30 \ V, V_{\rm SS} = -30 \ V, I_{\rm D} = -14 \ A \\ \hline {\rm 10} \ 2.0 \ & 11 \ 2.0 \ \\ \hline {\rm N}_{\rm D} = -10 \ A, V_{\rm CS} = -10 \ V, I_{\rm S} = 1 \ \Omega \\ \hline {\rm N}_{\rm D} = -10 \ A, V_{\rm CS} = 1 \ \Omega \\ \hline {\rm N}_{\rm D} = -10 \ A, V_{\rm CS} = 1 \ \Omega \\ \hline {\rm N}_{\rm D} = -10 \ A, V_{\rm CS} = 0 \ V \\ \hline {\rm N}_{\rm D} = -10 \ A, V_{\rm CS} = 0 \ V \\ \hline {\rm N}_{\rm D} = -10 \ A, V_{\rm CS} = 0 \ V \\ \hline {\rm N}_{\rm C} \ A \ \ A \ A \\ \hline {\rm N}_{\rm C} \ A \ $	Static						
$ \begin{array}{c c c c c c c } \hline \text{Gate Threshold Voltage} & V_{\text{GS}}(h) & V_{\text{DS}} = V_{\text{GS}}, h = -250 \ \mu\text{A} & -1 & -2.5 & -$	Drain-Source Breakdown Voltage	V <sub>DS</sub>	$V_{DS} = 0 V, I_{D} = -250 \mu A$	- 60			v
$ \begin{array}{ c c c c c c } \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = -10 \ V \\ \hline V_{DS} = -60 \ V, \ V_{GS} = -10 \ V \\ \hline V_{DS} = -60 \ V, \ V_{DS} = -10 \ V \\ \hline V_{CS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -60 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -60 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -30 \ V, \ V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -30 \ V, \ V_{CS} = 10 \ V \\ \hline V_{DS} = -30 \ V, \ V_{CS} = 10 \ V \\ \hline V_{DS} = -30 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -10 \ V, \ V_{DS} = -10 \ V \\ \hline V_{DS} = -30 \ V, \ V_{CS} = 10 \ V \ V_{DS} = -10 \ V \\ \hline V_{DS} = -30 \ V, \ V_{CS} = 10 \ V \ V_{DS} = -10 \ V \ V_{CS} = 10 \ V \ V_{DS} = -10 \ V \ V_{CS} = 10 \ V \ V_{CS} =$	Gate Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}$ , $I_D = -250 \ \mu A$	- 1		- 2.5	
$ \begin{array}{ c c c c c c c } Zero Gate Voltage Drain Current & I_{DSS} & V_{DS} = -60 \ V, \ V_{GS} = 0 \ V, \ V_{J} = 125 \ ^{\circ}C & & & -50 \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V, \ V_{J} = 150 \ ^{\circ}C & & & -250 \\ \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V, \ V_{J} = 150 \ ^{\circ}C & & & -250 \\ \hline V_{DS} = -60 \ V, \ V_{GS} = -10 \ V, \ V_{GS} = -10 \ V & -30 & & & & A \\ \hline V_{GS} = -10 \ V, \ V_{DS} = -10 \ V & -30 & & & & & & A \\ \hline V_{GS} = -10 \ V, \ V_{DS} = -10 \ V & -30 & & & & & & & & & & & & & & & & & & &$	Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS}$ = 0 V, $V_{GS}$ = ± 20 V			± 250	nA
$ \begin{array}{ c c c c c c } \hline V_{DS} = -60 \ V, \ V_{GS} = 0 \ V, \ T_J = 150 \ ^{\circ} C & & & & & & & & & & & & & & & & & & $			$V_{DS} = -60 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$			- 1	μA
$ \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 <sub>DSS</sub>				- 50	
$ \begin{array}{ c c c c c } \hline P_{QS} = -10 \ V, \  _{D} = -14 \ A & 0.048 & 0.04$			$V_{DS} = -60 \text{ V}, \text{ V}_{GS} = 0 \text{ V}, \text{ T}_{J} = 150 ^{\circ}\text{C}$			- 250	
$\begin{array}{ c c c c c c c } \hline \mbox{Drain-Source On-State Resistance}^a & \mbox{P}_{DS(on)} & \begin{tabular}{ c c c c c } \hline \mbox{V}_{GS} = -4.5 \ V, \ I_D = -12 \ A & 0.060 & \end{tabular} & \end{tabuar} & \end{tabular} & $	On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} \le$ - 10 V, $V_{GS}$ = - 10 V	- 30			A
Forward Transconductance <sup>a</sup> $y_{ls}$ $V_{CS} = -4.5$ , $v_{lp} = -12$ A $0.060$ $-1000$ Porward Transconductance <sup>a</sup> $y_{ls}$ $V_{DS} = -20$ V, $l_{D} = -14$ A $40$ S           Dynamic <sup>b</sup> UNIT Capacitance         Ciss $V_{GS} = 0$ V, $V_{DS} = -30$ V, $f = 1$ MHz $400$ pF           Qutput Capacitance $C_{css}$ $V_{GS} = 0$ V, $V_{DS} = -30$ V, $f = 1$ MHz $200$ pF           Qutput Capacitance $C_{rss}$ $V_{GS} = 0$ V, $V_{DS} = -30$ V, $f = 1$ MHz $200$ p           Total Gate Charge <sup>c</sup> $Q_{g}$ $Q_{gd}$ $A_{DS}$ $A_{DS}$ $A_{DS}$ $A_{DS}$ $A_{DS}$ Gate Charge <sup>c</sup> $Q_{gd}$ $f = 1$ MHz $0.5$ $2.5$ $5$ $\Omega$ Gate Resistance $R_g$ $f = 1$ MHz $0.5$ $2.5$ $5$ $\Omega$ Turn-On Delay Time <sup>c</sup> $t_g$ $10$ $20$ $111$ $20$ $10$ $20$ $10$ F		P	V <sub>GS</sub> = - 10 V, I <sub>D</sub> = - 14 A		0.048		Ω
$ \begin{array}{c c c c c c c c } \hline \textbf{Dynamic}^{b} & & & & & & & & & & & & & & & & & & &$	Drain-Source On-State Resistance	''DS(on)	V <sub>GS</sub> = - 4.5 V, I <sub>D</sub> = - 12 A		0.060		
$ \begin{array}{c c c c c c c c c } \hline Input Capacitance & C_{1SS} \\ \hline Output Capacitance & C_{oss} \\ \hline Output Capacitance & C_{rss} \\ \hline Output Capacitance & C_{rss} \\ \hline Total Gate Charge^{c} & Q_{g} \\ \hline Gate-Source Charge^{c} & Q_{gd} \\ \hline Turn-On Delay Time^{c} & t_{d(on)} \\ \hline Rise Time^{c} & t_{d(off)} \\ \hline Turn-Off Delay Time^{c} & t_{d(off)} \\ \hline Fall Time^{c} & t_{f} \\ \hline \\ \hline D_{a}^{\simeq} - 10 \ A, \ V_{GEN} = - 10 \ V, \ R_{g} = 1 \ \Omega \\ \hline \\ \hline D_{a}^{\simeq} - 10 \ A, \ V_{GS} = 0 \ V \\ \hline \\$	Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = - 20 V, I <sub>D</sub> = - 14 A		40		S
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Dynamic <sup>b</sup>		· · · · · ·				
Reverse Transfer Capacitance $C_{rss}$ 120         120           Total Gate Charge <sup>c</sup> $Q_g$ $0_{gs}$	Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = - 30 V, f = 1 MHz		1650		pF
$ \begin{array}{c c c c c c c c c } \hline Total Gate Charge^{\circ} & Q_{g} & & & & & & & & & & & & & & & & & & &$	Output Capacitance	C <sub>oss</sub>			200		
$ \begin{array}{c c c c c c c } \hline Gate-Source Charge^{c} & $Q_{gd}$ & $V_{DS} = -30V, V_{GS} = -10V, I_{D} = -14A$ & $13.5$ & $14$ & $14$ & $14$ & $14$ & $14$ & $14$ & $15$ & $16$ & $14$ & $16$ & $14$ & $16$ &$	Reverse Transfer Capacitance	C <sub>rss</sub>			120		
$ \begin{array}{c c c c c c } \hline Gate-Drain Charge^c & Q_{gd} & & & & & & & & & & & & & & & & & & &$	Total Gate Charge <sup>c</sup>	Qg			67		nC
$ \begin{array}{c c c c c c c c } \hline Gate Resistance & R_g & f = 1 \ \mbox{MHz} & 0.5 & 2.5 & 5 & \Omega \\ \hline Turn-On \ \mbox{Delay Time}^c & t_{d(on)} & & & & & & & & & & & & & & & & & & &$	Gate-Source Charge <sup>c</sup>	Q <sub>gs</sub>	$V_{DS} = -30V$ , $V_{GS} = -10$ V, $I_{D} = -14$ A		13.5		
$\begin{tabular}{ c c c c c c } \hline Turn-On Delay Time^c & t_{d(on)} \\ \hline Rise Time^c & t_r & \\ \hline Turn-Off Delay Time^c & t_{d(off)} \\ \hline Turn-Off Delay Time^c & t_{d(off)} \\ \hline Tain-Source Body Diode Ratings and Characteristics $T_C = 25 °C^b$ & $11$ 20$ & $12$ 20$ &$	Gate-Drain Charge <sup>c</sup>	Q <sub>gd</sub>			14		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Gate Resistance	Rg	f = 1 MHz	0.5	2.5	5	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 <sup>c</sup>	t <sub>d(on)</sub>			10	20	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Rise Time <sup>c</sup>	t <sub>r</sub>	55 · E		11	20	ns
Drain-Source Body Diode Ratings and Characteristics $T_C = 25 \ ^{\circ}C^b$ Continuous CurrentIs- 35APulsed CurrentIsM- 100- 100Forward Voltage <sup>a</sup> VSDIF = - 10 A, V_GS = 0 V- 0.8- 1.5VReverse Recovery Time $t_{rr}$ 3857nsPeak Reverse Recovery CurrentIRM(REC)IF = - 10 A, dl/dt = 100 A/µs2.33.5A	Turn-Off Delay Time <sup>c</sup>	t <sub>d(off)</sub>			42	63	
$\begin{tabular}{ c c c c c c c c } \hline Continuous Current & I_S & & & & & & & & & & & & & & & & & & &$	Fall Time <sup>c</sup>	t <sub>f</sub>			12	20	
Pulsed Current         I         I         A           Forward Voltage <sup>a</sup> V <sub>SD</sub> I <sub>F</sub> = -10 A, V <sub>GS</sub> = 0 V         -0.8         -1.5         V           Reverse Recovery Time $t_{rr}$ 38         57         ns           Peak Reverse Recovery Current         I <sub>RM(REC)</sub> I <sub>F</sub> = -10 A, dI/dt = 100 A/µs         2.3         3.5         A	Drain-Source Body Diode Ratings a	nd Characteri	stics T <sub>C</sub> = 25 °C <sup>b</sup>				
$\begin{tabular}{ c c c c c c } \hline Pulsed Current & I_{SM} & & & & & & & & & & & & & & & & & & &$	Continuous Current	۱ <sub>S</sub>				- 35	A
Reverse Recovery Time $t_{rr}$ 3857nsPeak Reverse Recovery Current $I_{RM(REC)}$ $I_F = -10 \text{ A}, dI/dt = 100 \text{ A/}\mu s$ 2.33.5A	Pulsed Current	I <sub>SM</sub>			1	- 100	
Peak Reverse Recovery CurrentIRM(REC)IF = - 10 A, dl/dt = 100 A/µs2.33.5A	Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>F</sub> = - 10 A, V <sub>GS</sub> = 0 V		- 0.8	- 1.5	V
	Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = - 10 A, dl/dt = 100 A/μs		38	57	ns
Reverse Recovery Charge     Q <sub>rr</sub> 40     60     nC	Peak Reverse Recovery Current	I <sub>RM(REC)</sub>			2.3	3.5	А
	Reverse Recovery Charge	Q <sub>rr</sub>			40	60	nC

Notes:

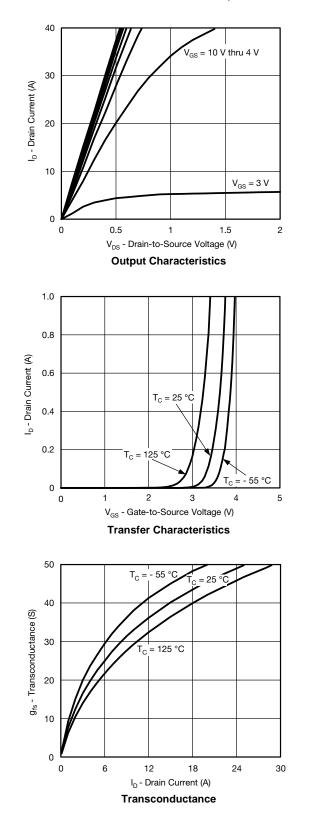
a. Pulse test; pulse width  $\leq$  300  $\mu s,$  duty cycle  $\leq$  2 %. b. Guaranteed by design, not subject to production testing.

c. Independent of operating temperature.

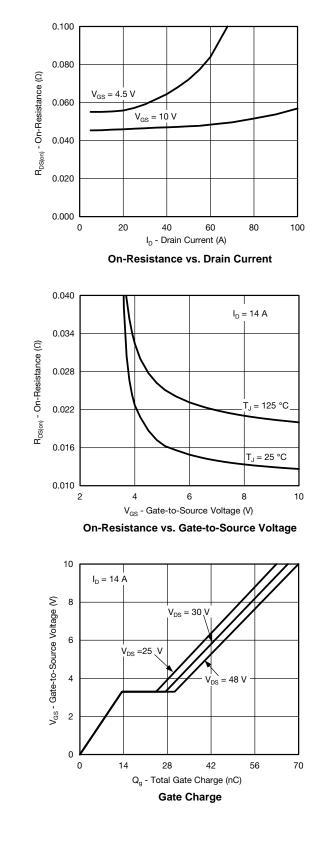
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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

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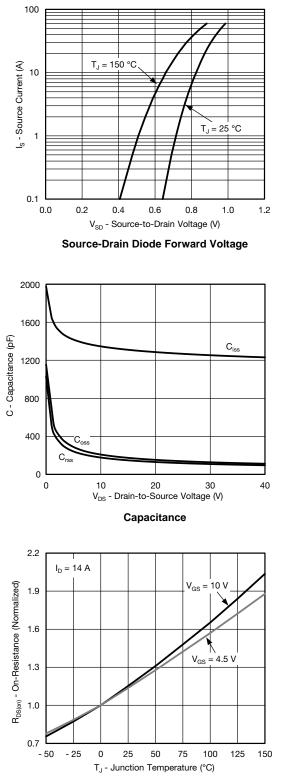


#### TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

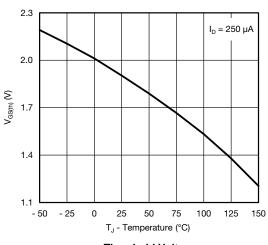




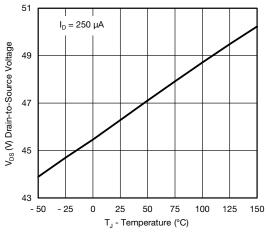




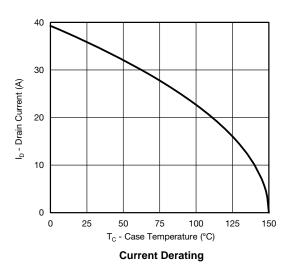
On-Resistance vs. Junction Temperature



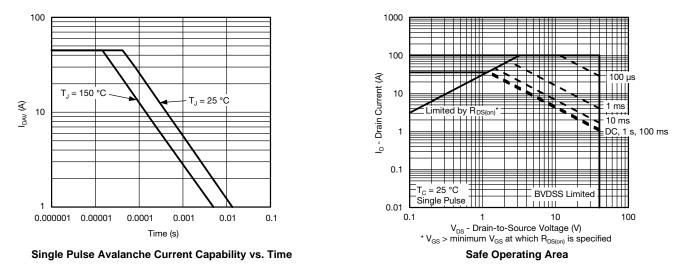
Threshold Voltage



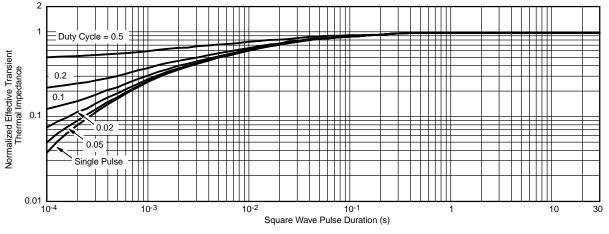
Drain Source Breakdown vs. Junction Temperature







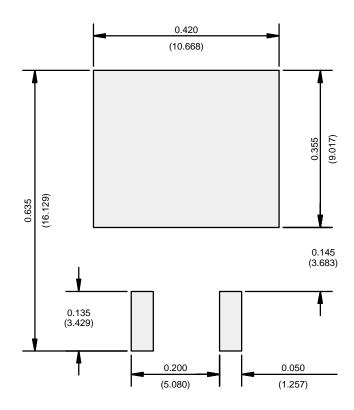
#### TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Case



#### **RECOMMENDED MINIMUM PADS FOR D<sup>2</sup>PAK: 3-Lead**



Recommended Minimum Pads Dimensions in Inches/(mm)



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