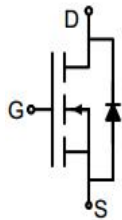
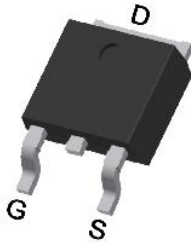


## N-Channel Enhancement Mode Power MOSFET

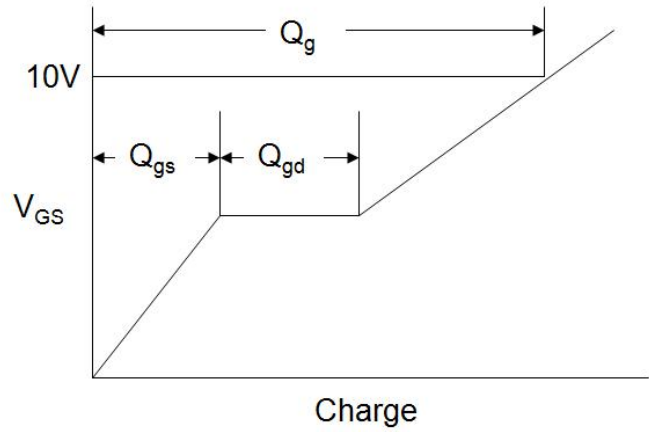
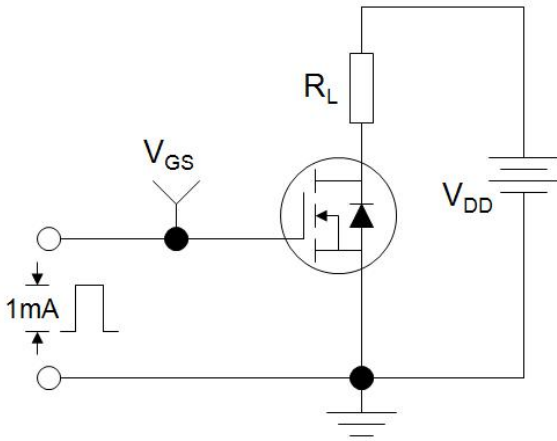
<p><b>Description</b></p> <p>The 15N06K uses advanced trench technology to provide excellent <math>R_{DS(ON)}</math>, low gate charge. It can be used in a wide variety of applications.</p> <p><b>General Features</b></p> <ul style="list-style-type: none"> <li>● <math>V_{DS}</math> 60V</li> <li>● <math>I_D</math> (at <math>V_{GS} = 10V</math>) 15A</li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = 10V</math>) &lt; 45m<math>\Omega</math></li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = 4.5V</math>) &lt; 50m<math>\Omega</math></li> <li>● 100% Avalanche Tested</li> <li>● RoHS Compliant</li> </ul> <p><b>Application</b></p> <ul style="list-style-type: none"> <li>● Power switch</li> <li>● DC/DC converters</li> </ul>		 <p>Schematic diagram</p>  <p>TO-252</p>	
<b>Device</b>	<b>Package</b>	<b>Marking</b>	<b>Packaging</b>
15N06K	TO-252	15N06	2500pcs/Reel

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

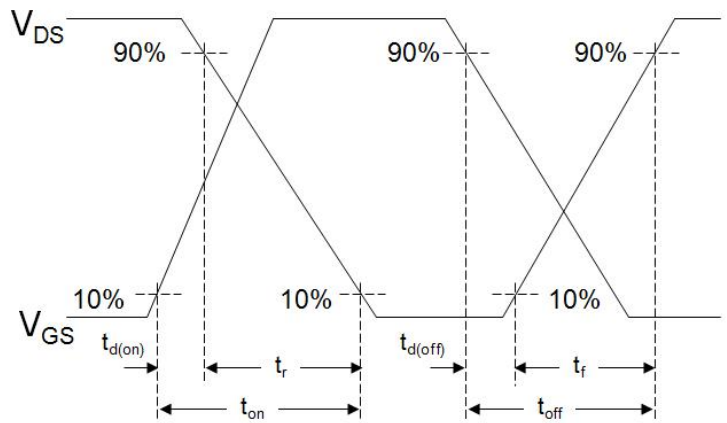
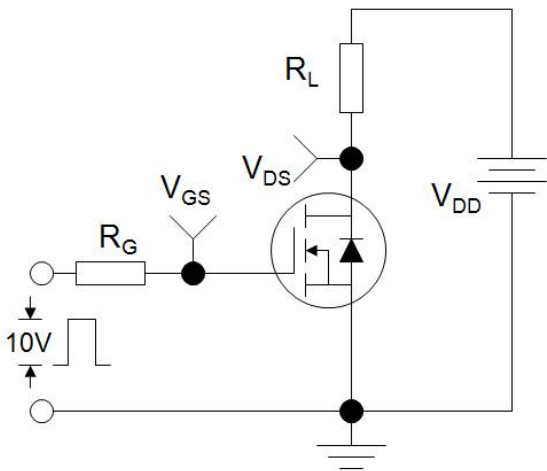
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Continuous Drain Current	$I_D$	15	A
Pulsed Drain Current (note1)	$I_{DM}$	60	A
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Single Pulse Avalanche Energy (note3)	$E_{AS}$	12	mJ
Power Dissipation	$P_D$	40	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 To 150	$^\circ\text{C}$
<b>Thermal Resistance</b>			
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{thJC}$	3.1	$^\circ\text{C/W}$

Specifications $T_J = 25^\circ\text{C}$ , unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
<b>Static Parameters</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 100V, V_{GS} = 0V$	--	--	1	$\mu A$
Gate-Source Leakage	$I_{GSS}$	$V_{GS} = \pm 20V$	--	--	$\pm 100$	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.9	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 8A$	--	31	45	m $\Omega$
		$V_{GS} = 4.5V, I_D = 6A$	--	39	50	
Forward Transconductance	$g_{FS}$	$V_{DS}=25V, I_D=8A$	--	17.4	--	S
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V,$ $V_{DS} = 30V,$ $f = 1.0MHz$	--	763	--	pF
Output Capacitance	$C_{oss}$		--	41	--	
Reverse Transfer Capacitance	$C_{rss}$		--	37	--	
Total Gate Charge	$Q_g$	$V_{DD} = 50V,$ $I_D = 10A,$ $V_{GS} = 10V$	--	25	--	nC
Gate-Source Charge	$Q_{gs}$		--	4.5	--	
Gate-Drain Charge	$Q_{gd}$		--	6.5	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 30V,$ $I_D = 10A,$ $R_G = 3\Omega$	--	7	--	ns
Turn-on Rise Time	$t_r$		--	20	--	
Turn-off Delay Time	$t_{d(off)}$		--	16	--	
Turn-off Fall Time	$t_f$		--	23	--	
<b>Drain-Source Body Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$	$T_C = 25^\circ\text{C}$	--	--	15	A
Body Diode Voltage	$V_{SD}$	$T_J = 25^\circ\text{C}, I_{SD} = 8A, V_{GS} = 0V$	--	--	1.2	V

Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit

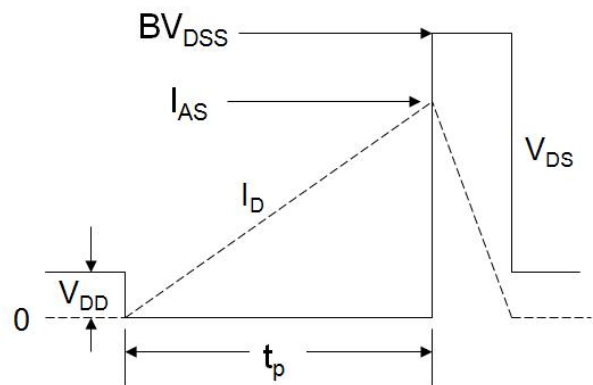
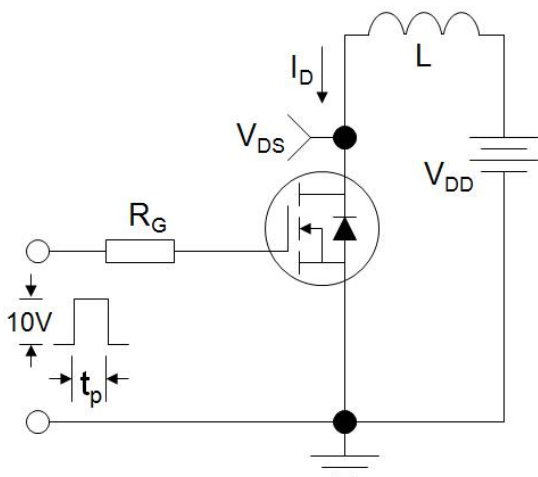


Figure 1. Output Characteristics

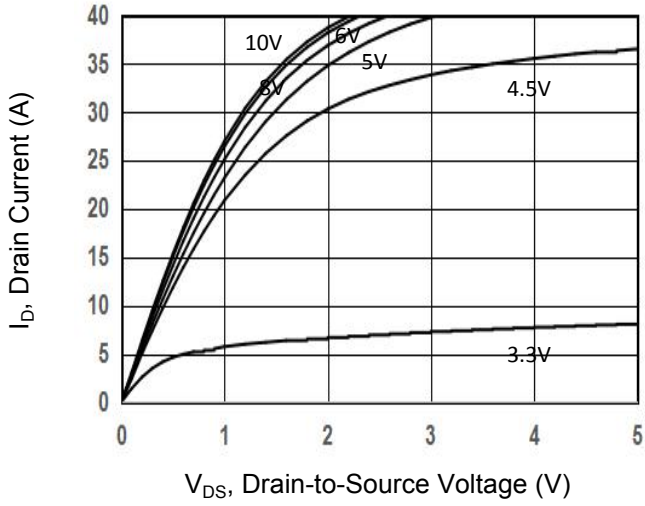


Figure 2. Transfer Characteristics

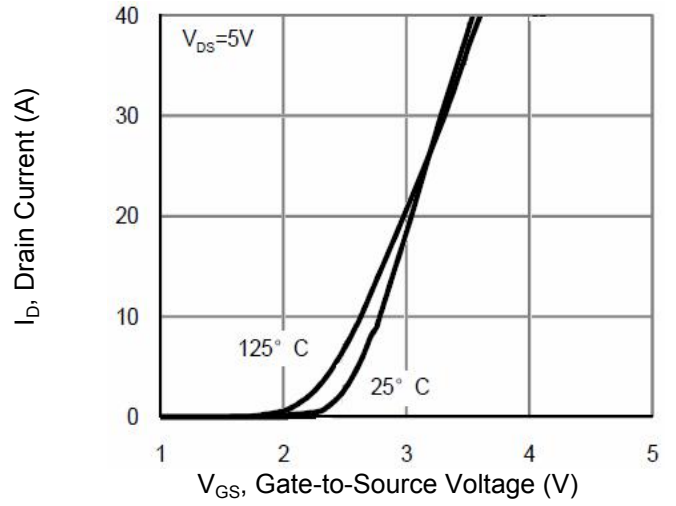


Figure 3. Gate Charge

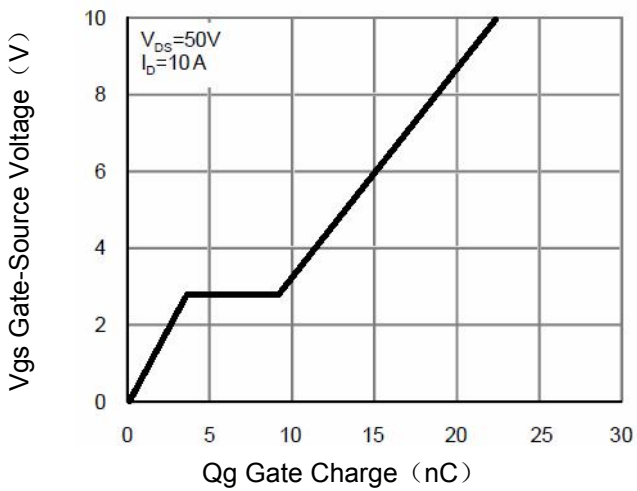


Figure 4. Drain Source On Resistance

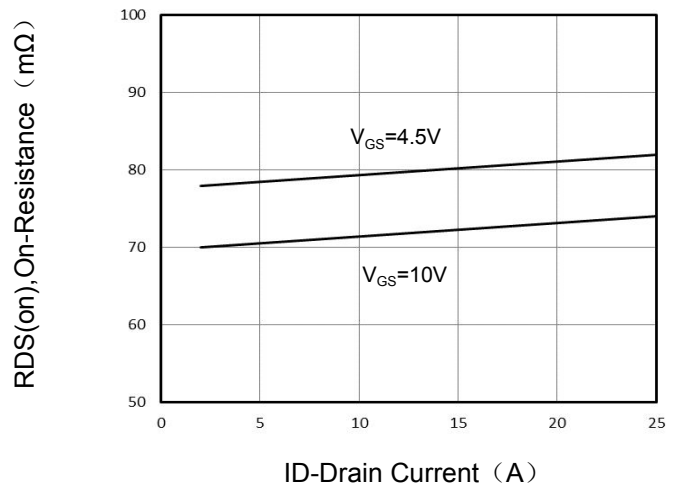


Figure 5. Capacitance

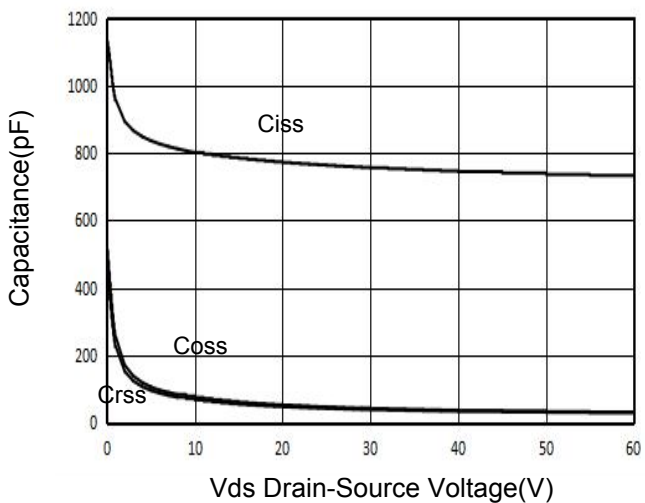
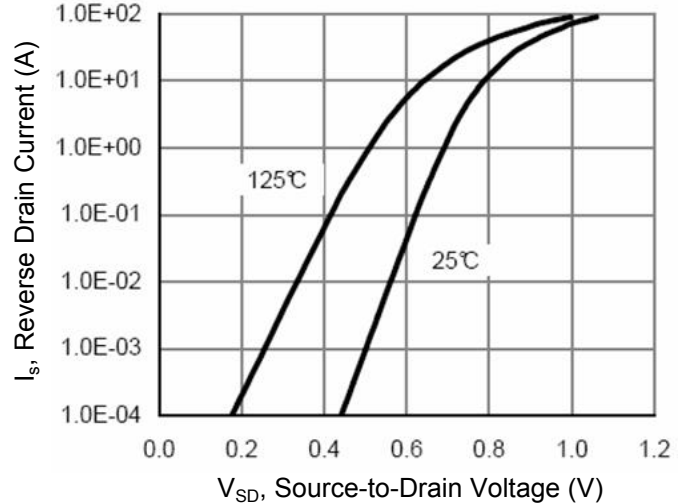


Figure 6. Source-Drain Diode Forward



Typical Characteristics  $T_J = 25^\circ\text{C}$ , unless otherwise noted

Figure 7. Drain-Source On-Resistance

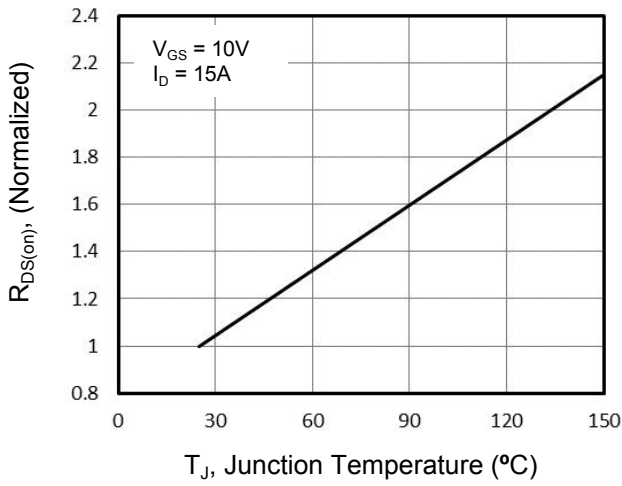


Figure 8. Safe Operation Area

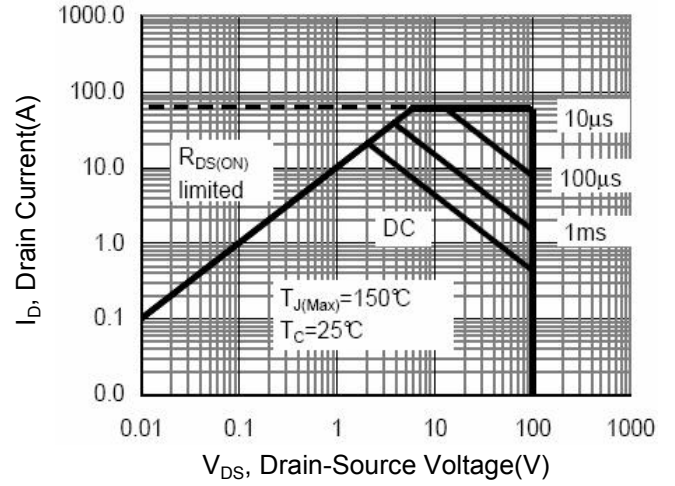
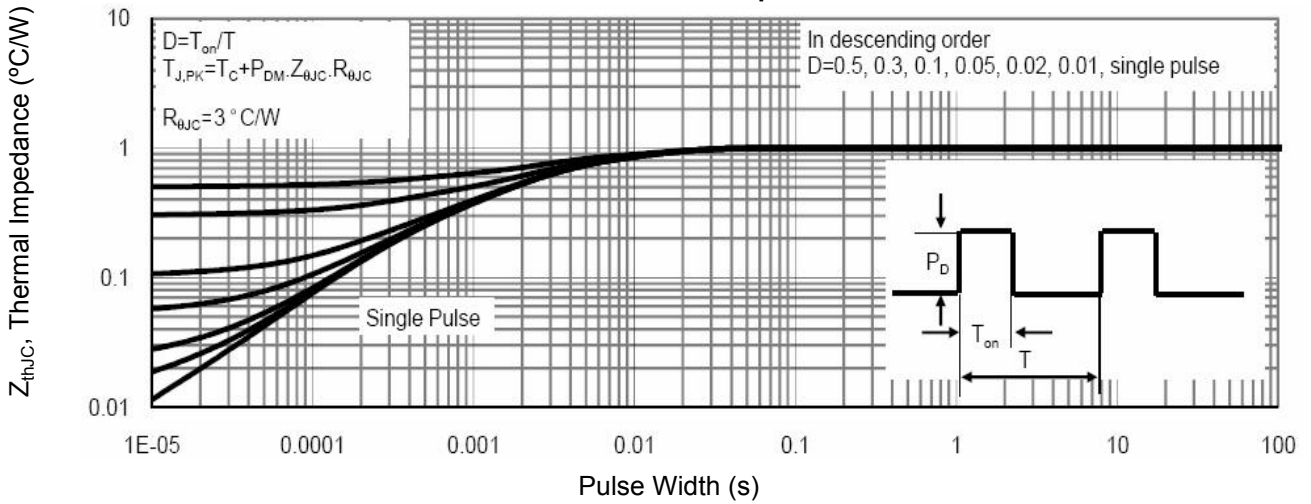
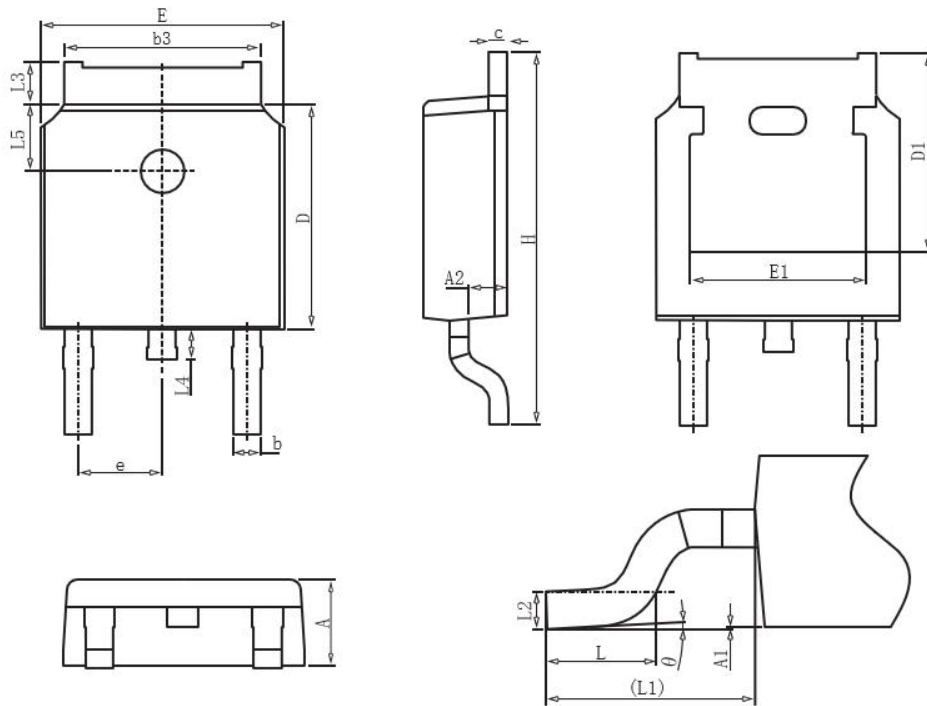


Figure 9. Normalized Maximum Transient Thermal Impedance



## TO-252 Package Information



Symbol	Dimensions in Millimeters		
	MIN.	NOM.	MAX.
A	2.2	2.3	2.4
A1	0		0.2
A2	0.97	1.07	1.17
b	0.68	0.78	0.9
b3	5.2	5.33	5.5
c	0.43	0.53	0.63
D	5.98	6.1	6.22
D1	5.30REF		
E	6.4	6.6	6.8
E1	4.63		
e	2.286BSC		
H	9.4	10.1	10.5
L	1.38	1.5	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88		1.28
L4	0.5		1
L5	1.65	1.8	1.95
θ	0°		8°