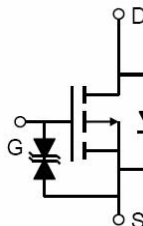
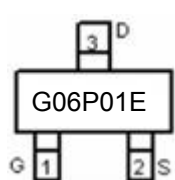
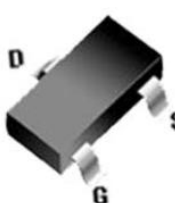


## P-Channel Enhancement Mode Power MOSFET

<p><b>Description</b></p> <p>The G06P01E 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> -12V</li> <li>● <math>I_D</math> (at <math>V_{GS} = -10V</math>) -4A</li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = -4.5V</math>) &lt; 28mΩ</li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = -3.7V</math>) &lt; 32mΩ</li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = -2.5V</math>) &lt; 40mΩ</li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = -1.8V</math>) &lt; 63mΩ</li> <li>● 100% Avalanche Tested</li> <li>● RoHS Compliant</li> <li>● ESD (HBM)&gt;2KV</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>Marking and pin assignment</p>  <p>SOT-23</p>	
<b>Device</b>	<b>Package</b>	<b>Marking</b>	<b>Packaging</b>
G06P01E	SOT-23	G06P01	3000pcs/Reel

<b>Absolute Maximum Ratings</b> $T_C = 25^\circ C$ , unless otherwise noted			
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-12	V
Continuous Drain Current	$I_D$	-4	A
Pulsed Drain Current (note1)	$I_{DM}$	-16	A
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Power Dissipation	$P_D$	1.8	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 To 150	$^\circ C$

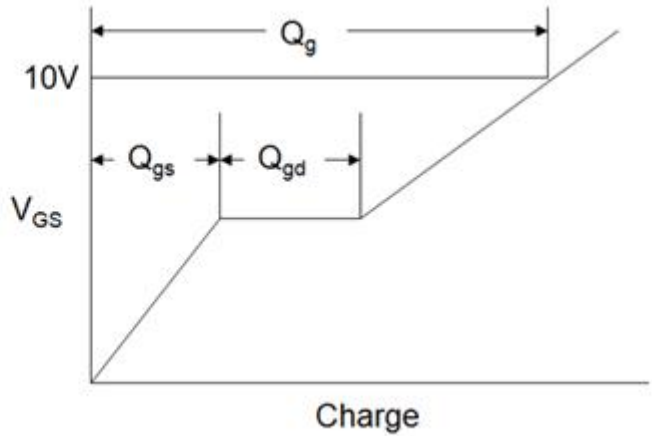
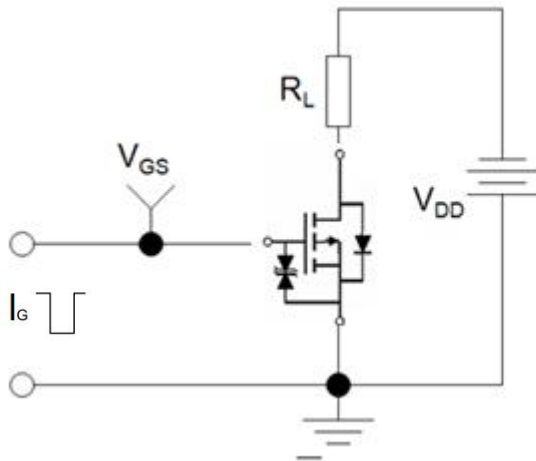
<b>Thermal Resistance</b>			
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	$R_{thJA}$	70	$^\circ C/W$

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-12	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -12V, V_{GS} = 0V$	--	--	-1	$\mu A$
Gate-Source Leakage	$I_{GSS}$	$V_{GS} = \pm 10V$	--	--	$\pm 10$	$\mu A$
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.6	-1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -3A$	--	23	28	m $\Omega$
		$V_{GS} = -3.7V, I_D = -2A$	--	25	32	
		$V_{GS} = -2.5V, I_D = -2A$	--	30	40	
		$V_{GS} = -1.8V, I_D = -1A$	--	43	63	
Forward Transconductance	$g_{FS}$	$V_{DS} = -5V, I_D = -3A$	--	10.5	--	S
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V,$ $V_{DS} = -6V,$ $f = 1.0MHz$	--	1087	--	pF
Output Capacitance	$C_{oss}$		--	267	--	
Reverse Transfer Capacitance	$C_{rss}$		--	253	--	
Total Gate Charge	$Q_g$	$V_{DS} = -6V,$ $I_D = -3A,$ $V_{GS} = -4.5V$	--	14	--	nC
Gate-Source Charge	$Q_{gs}$		--	2.3	--	
Gate-Drain Charge	$Q_{gd}$		--	3.6	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{DS} = -6V,$ $I_D = -3A,$ $R_G = 1\Omega$	--	26	--	ns
Turn-on Rise Time	$t_r$		--	24	--	
Turn-off Delay Time	$t_{d(off)}$		--	45	--	
Turn-off Fall Time	$t_f$		--	20	--	
<b>Drain-Source Body Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$	$T_C = 25^\circ\text{C}$	--	--	-4	A
Body Diode Voltage	$V_{SD}$	$T_J = 25^\circ\text{C}, I_{SD} = -3A, V_{GS} = 0V$	--	--	-1.2	V

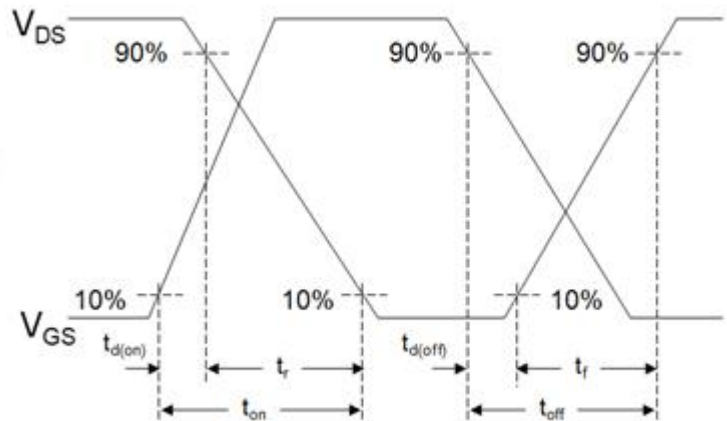
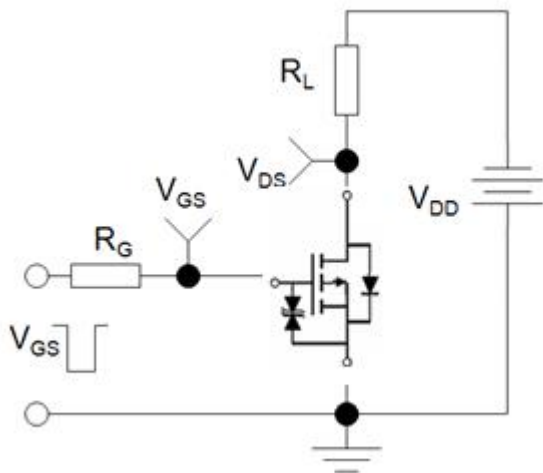
**Notes**

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical  $R_G$

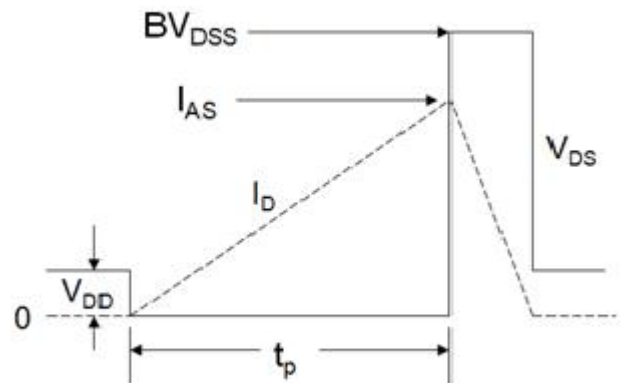
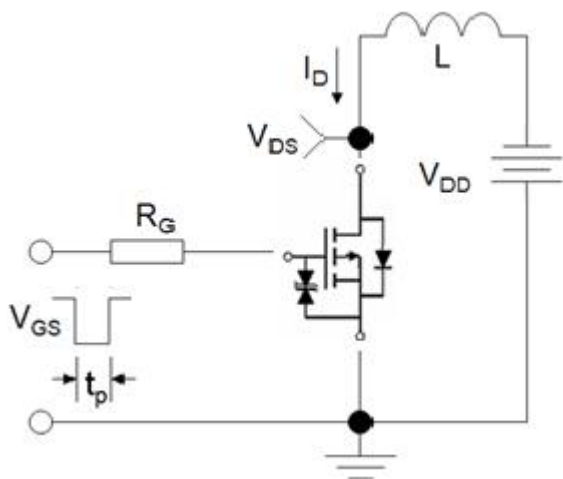
Gate Charge Test Circuit



Switch Time Test Circuit

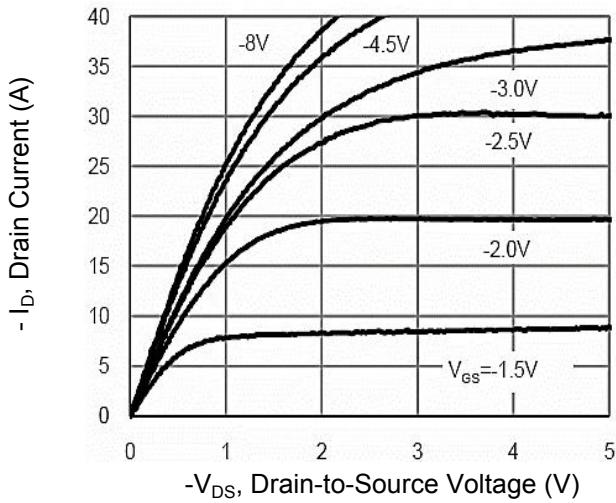


EAS Test Circuit

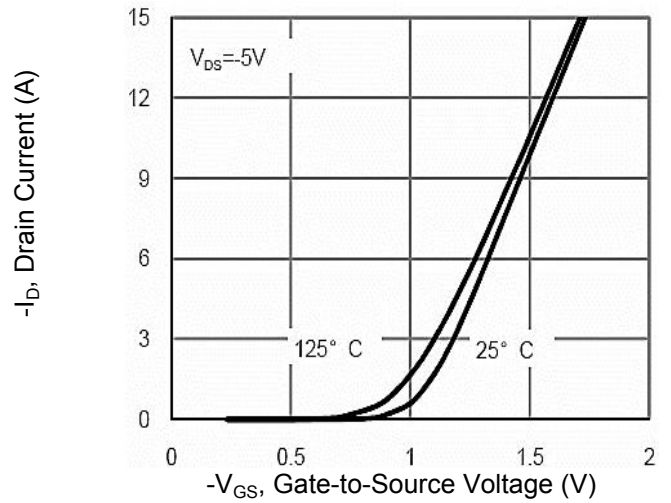


Typical Characteristics  $T_J = 25^\circ\text{C}$ , unless otherwise noted

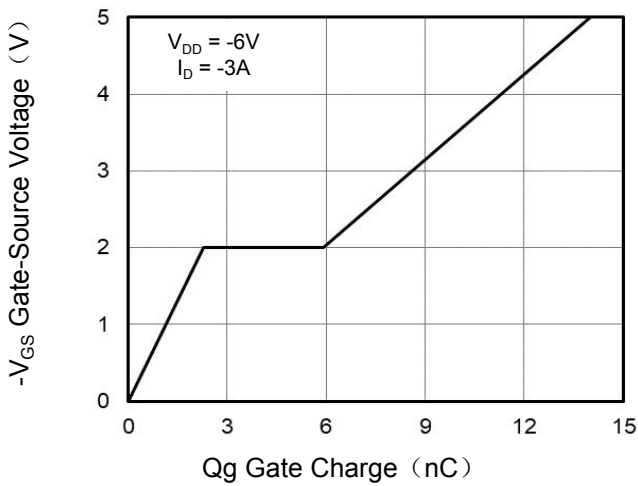
**Figure 1. Output Characteristics**



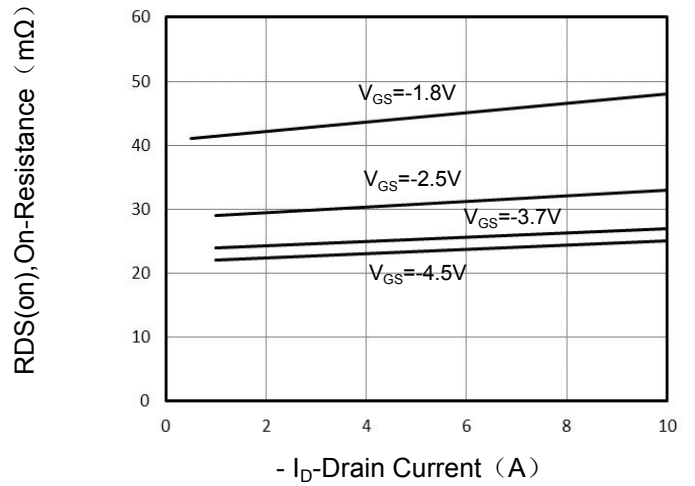
**Figure 2. Transfer Characteristics**



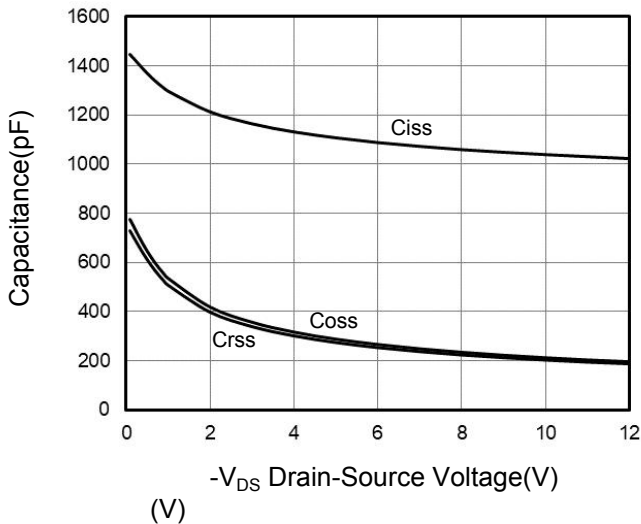
**Figure 3. Gate Charge**



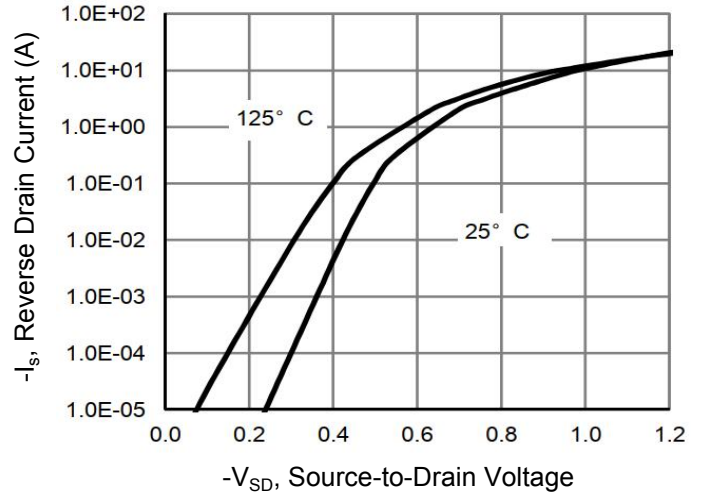
**Figure 4. Drain Source On Resistance**



**Figure 5. Capacitance**

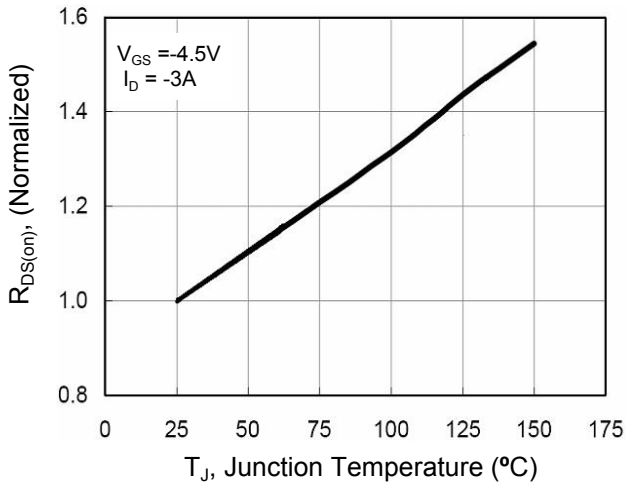


**Figure 6. Source-Drain Diode Forward**

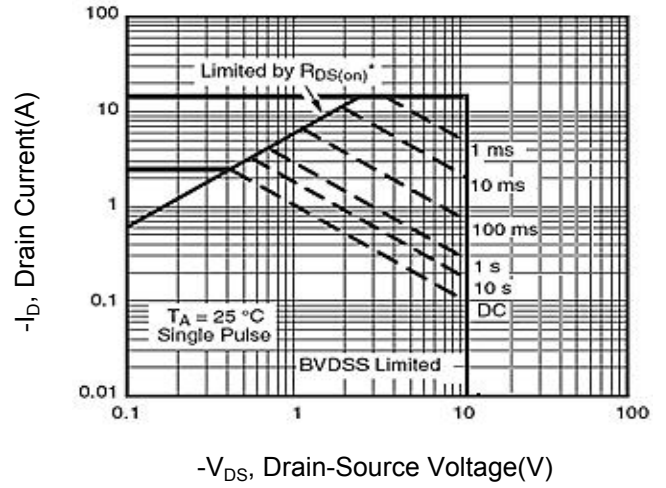


**Typical Characteristics**  $T_J = 25^\circ\text{C}$ , unless otherwise noted

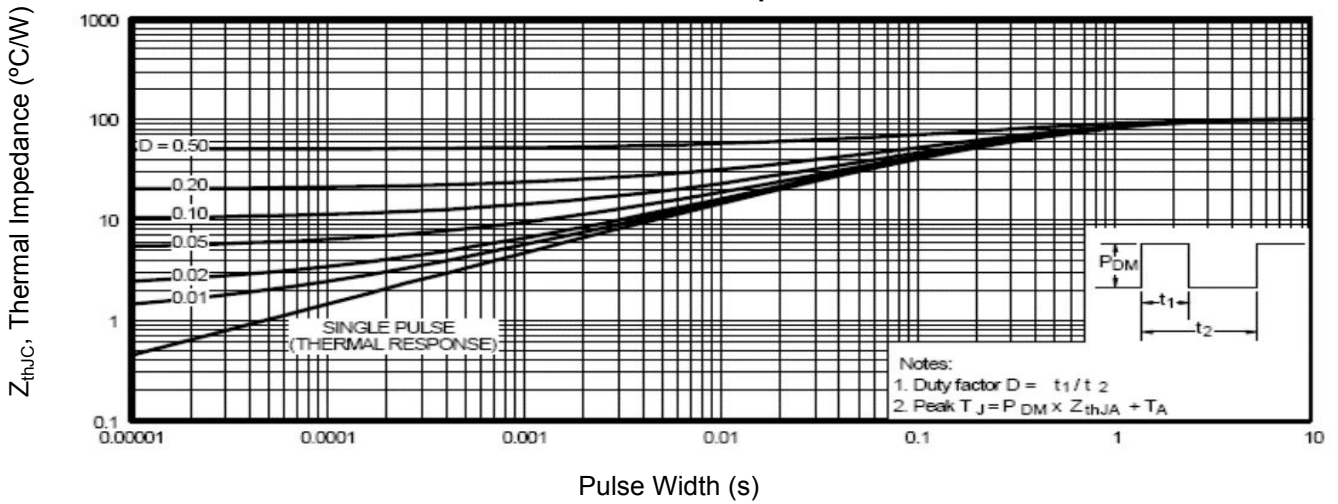
**Figure 7. Drain-Source On-Resistance**



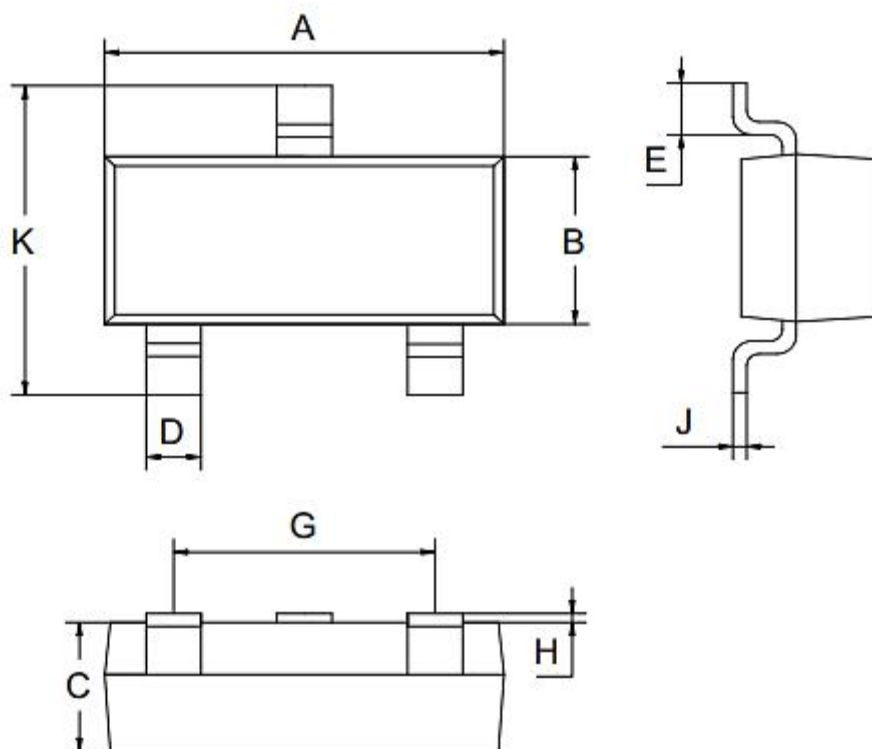
**Figure 8. Safe Operation Area**



**Figure 9. Normalized Maximum Transient Thermal Impedance**



**SOT-23 Package Information**



SOT-23			
Dim	MIN	NOM	MAX
A	2.80	2.90	3.00
B	1.20	1.30	1.40
C	0.90	1.00	1.10
D	0.39	0.40	0.45
E	0.20MIN		
G	1.90REF		
H	0.00	-	0.10
J	0.05	0.10	0.15
K	2.30	2.40	2.50
All Dimensions in mm			

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