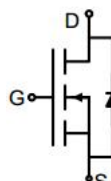
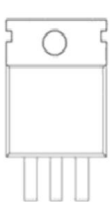



## N-Channel Enhancement Mode Power MOSFET

<p><b>Description</b></p> <p>The GT035N06T 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>) 170A</li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = 10V</math>) &lt; 3.5mΩ</li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = 4.5V</math>) &lt; 4.5mΩ</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> <li>● Synchronous Rectification</li> </ul>		 <p>Schematic Diagram</p>  <p>Marking and pin assignment</p>  <p>TO-220</p>	
<b>Device</b>	<b>Package</b>	<b>Marking</b>	<b>Packaging</b>
GT035N06T	TO-220	GT035N06	50pcs/Tube

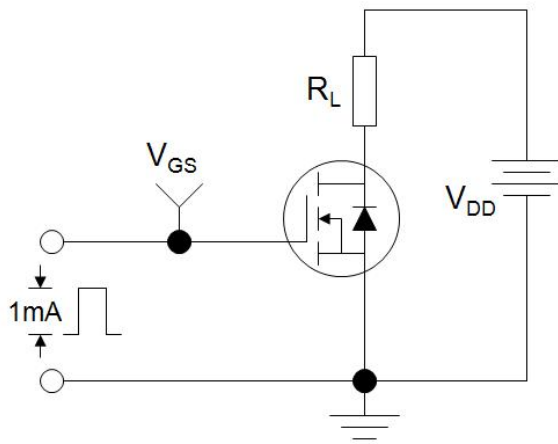
<b>Absolute Maximum Ratings</b> $T_C = 25^\circ\text{C}$ , unless otherwise noted			
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Continuous Drain Current	$I_D$	170	A
Pulsed Drain Current (note1)	$I_{DM}$	300	A
Gate-Source Voltage	$V_{GS}$	±20	V
Single pulse avalanche energy (note3)	$E_{AS}$	256	mJ
Power Dissipation	$P_D$	215	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 To 150	°C
<b>Thermal Resistance</b>			
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{thJA}$	50	°C/W
Maximum Junction-to-Case	$R_{thJC}$	0.58	°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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 60V, V_{GS} = 0V$	--	--	1	$\mu A$
Gate-Source Leakage	$I_{GSS}$	$V_{GS} = \pm 20V$	--	--	$\pm 100$	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	1.6	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$	--	2.5	3.5	m $\Omega$
		$V_{GS} = 4.5V, I_D = 20A$	--	3.0	4.5	
Forward Transconductance	$g_{FS}$	$V_{DS} = 5V, I_D = 20A$	--	60	--	S
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V,$ $V_{DS} = 30V,$ $f = 1.0\text{MHz}$	--	5064	--	pF
Output Capacitance	$C_{oss}$		--	1100	--	
Reverse Transfer Capacitance	$C_{rss}$		--	48	--	
Total Gate Charge	$Q_g$	$V_{DD} = 30V,$ $I_D = 20A,$ $V_{GS} = 10V$	--	70	--	nC
Gate-Source Charge	$Q_{gs}$		--	21	--	
Gate-Drain Charge	$Q_{gd}$		--	16	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 30V,$ $I_D = 50A,$ $R_G = 3\Omega$	--	16	--	ns
Turn-on Rise Time	$t_r$		--	9	--	
Turn-off Delay Time	$t_{d(off)}$		--	36	--	
Turn-off Fall Time	$t_f$		--	11	--	
<b>Drain-Source Body Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$	$T_C = 25^\circ\text{C}$	--	--	125	A
Body Diode Voltage	$V_{SD}$	$T_J = 25^\circ\text{C}, I_{SD} = 20A, V_{GS} = 0V$	--	--	1.2	V
Reverse Recovery Charge	$Q_{rr}$	$I_F = 20A, di/dt = 500A/\mu s$		150	--	nC
Reverse Recovery Time	$T_{rr}$			30	--	ns

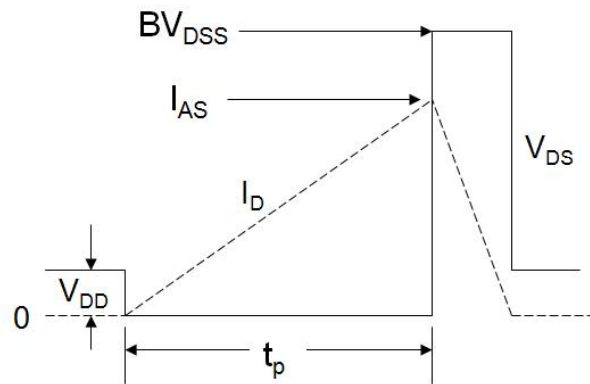
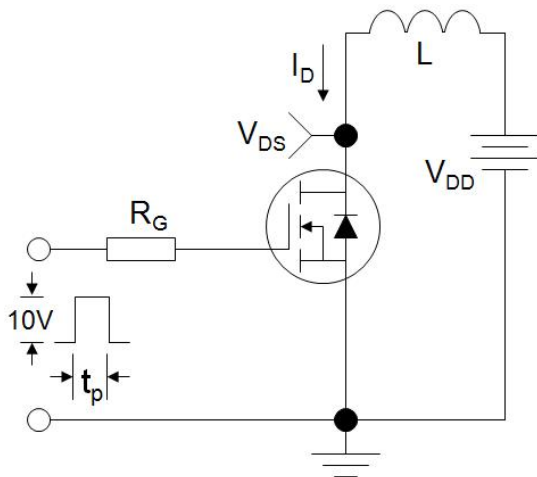
**Notes**

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2.  $I_{AS} = 20A, V_{DD} = 40V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ\text{C}$
3. Identical low side and high side switch with identical  $R_G$

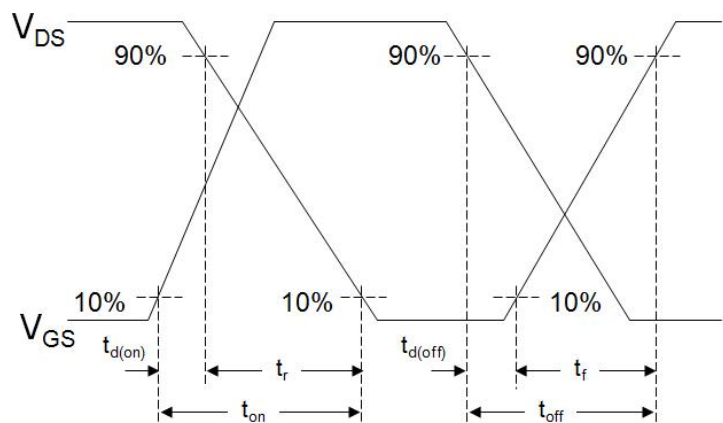
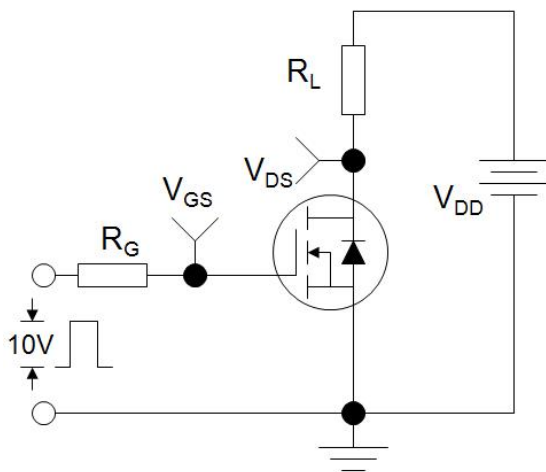
Gate Charge Test Circuit



EAS Test Circuit



Switch Time Test Circuit



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

Figure 1. Output Characteristics

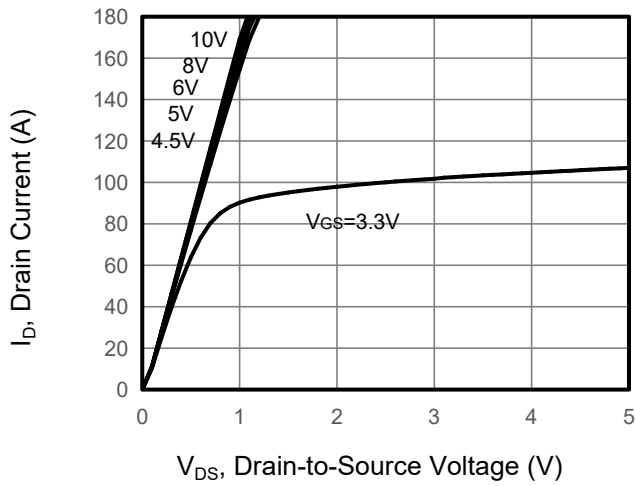


Figure 2. Transfer Characteristics

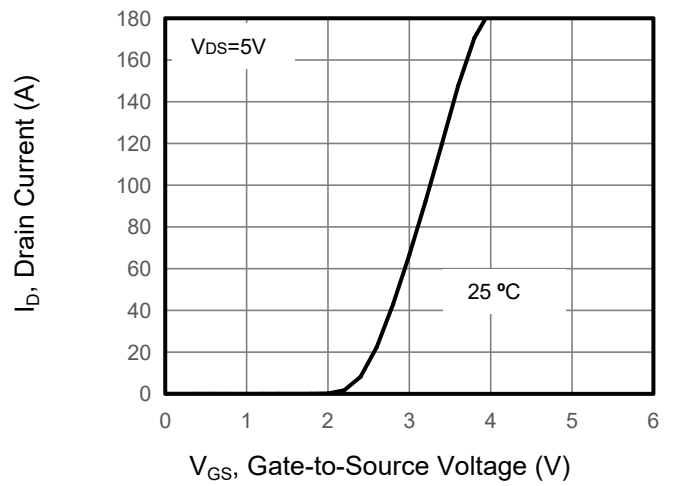


Figure 3. Gate Charge

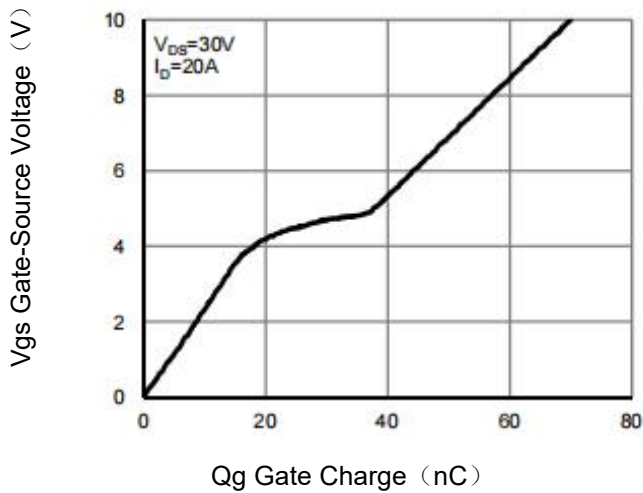


Figure 4. Drain Source On Resistance

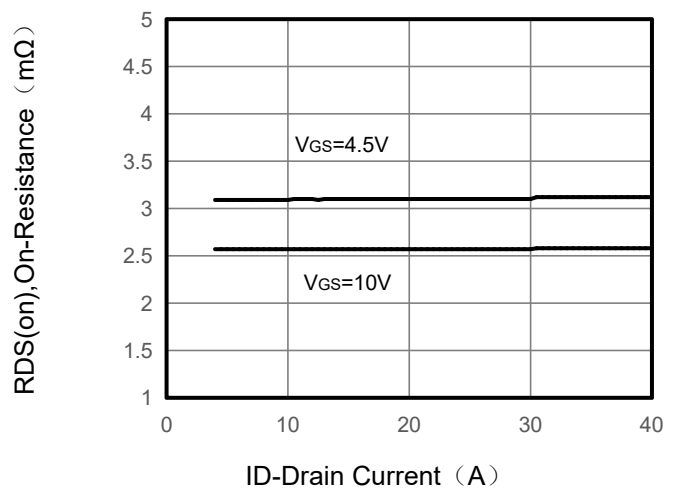


Figure 5. Capacitance vs Vds

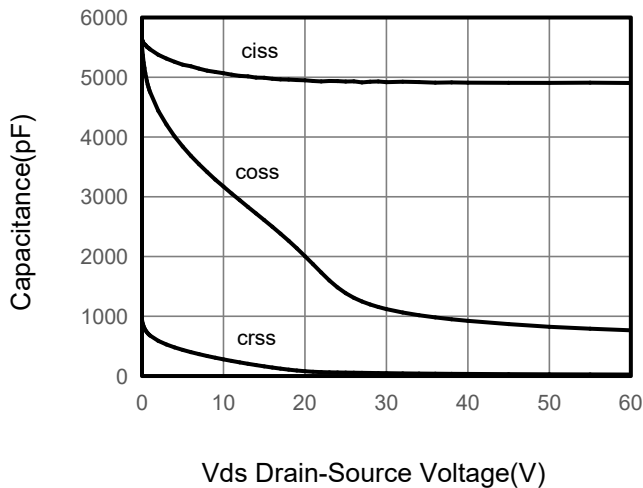
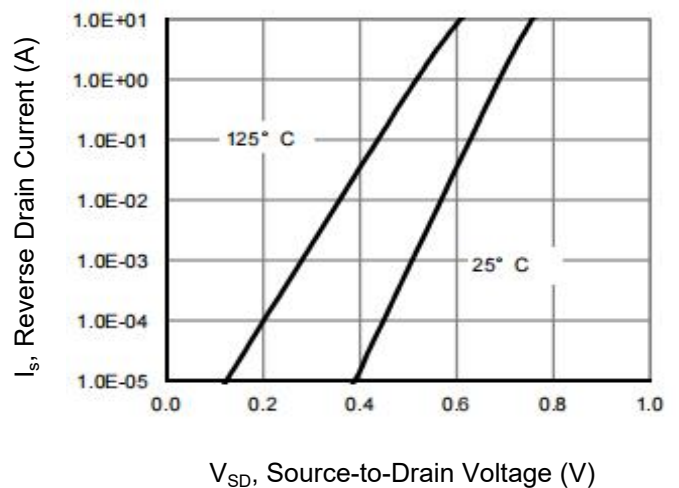


Figure 6. Source-Drain Diode Forward



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

Figure 7. Drain-Source On-Resistance

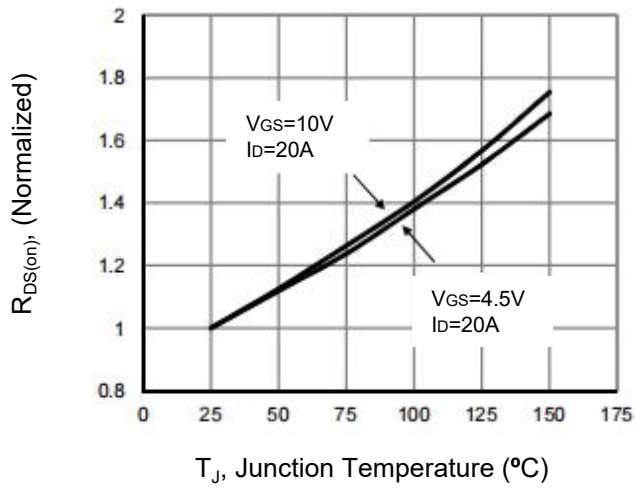


Figure 8. Safe Operation Area

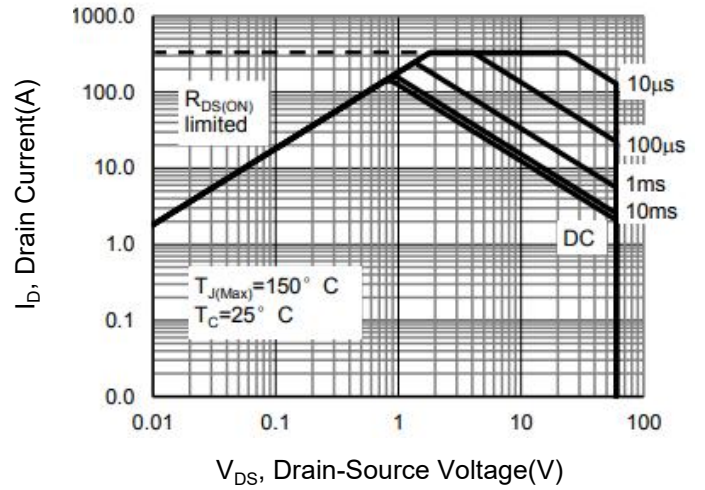
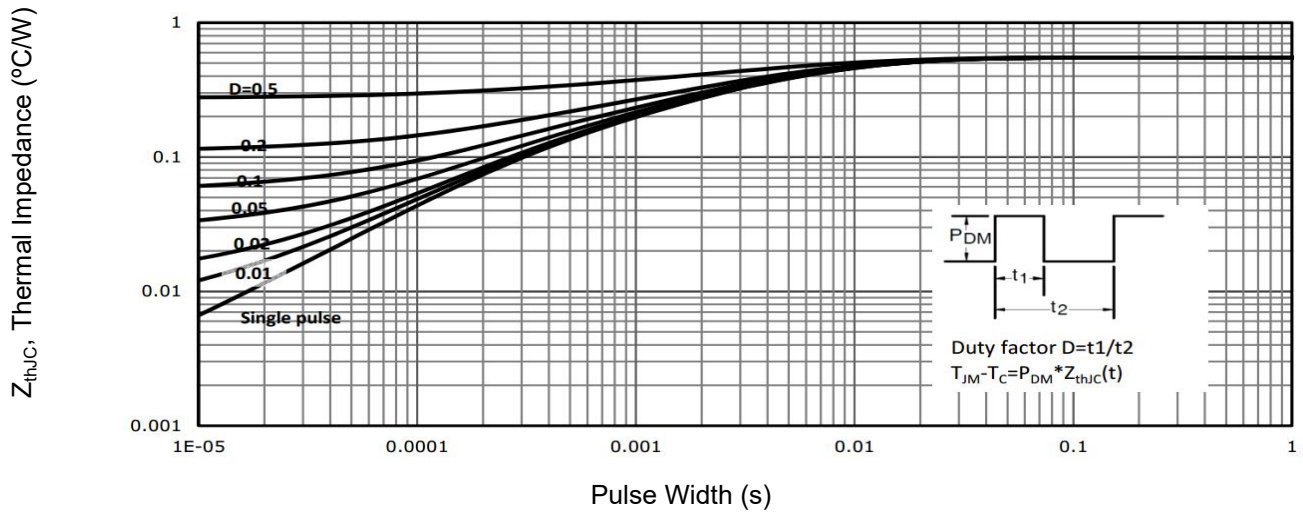
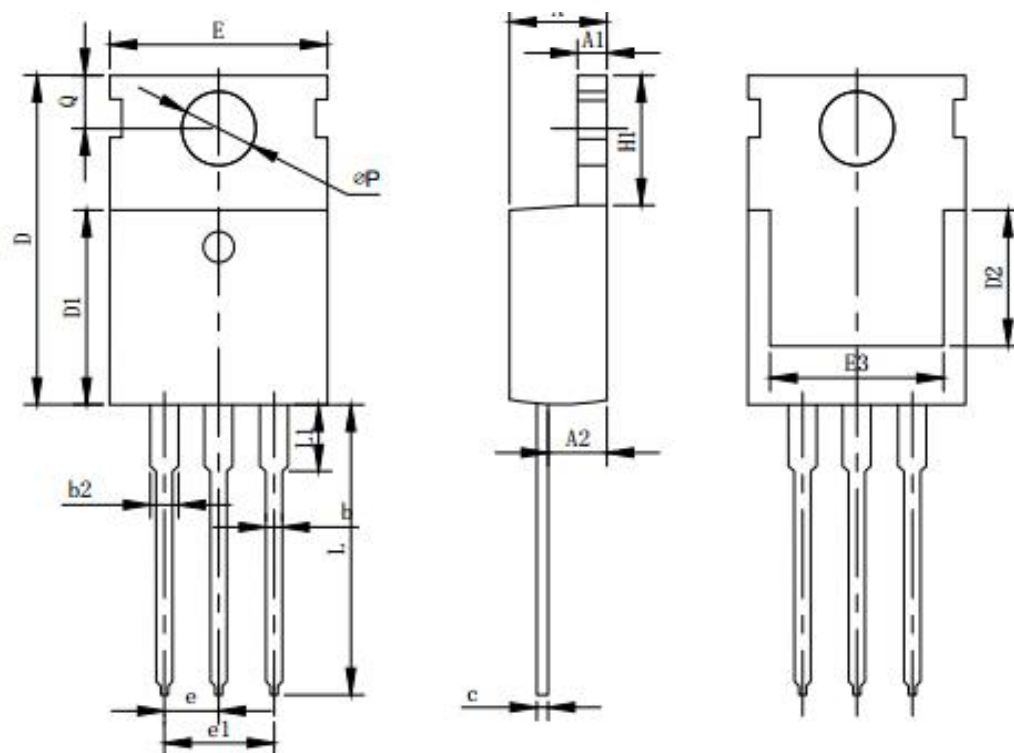


Figure 9. Normalized Maximum Transient Thermal Impedance



**TO-220 Package Information**



Symbol	Dimensions in Millimeters		
	MIN.	NOM.	MAX.
A	4.37	4.57	4.7
A1	1.25	1.3	1.4
A2	2.2	2.4	2.6
b	0.7	0.8	0.95
b2	1.7	1.27	1.47
c	0.45	0.5	0.6
D	15.1	15.6	16.1
D1	8.8	9.1	9.4
D2	5.5		
E	9.7	10	10.3
e	2.54BSC		
e1	5.08BSC		
H1	6.25	6.5	6.85
L	12.75	13.5	13.8
L1		3.1	3.4
∅ P	3.4	3.6	3.8
Q	2.6	2.8	3