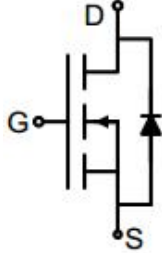



## N-Channel Enhancement Mode Power MOSFET

<p><b>Description</b></p> <p>The GT025N06AM 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; 2.5m<math>\Omega</math></li> <li>● <math>R_{DS(ON)}</math> (at <math>V_{GS} = 4.5V</math>) &lt; 3m<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> <li>● Synchronous Rectification</li> </ul>		 <p>Schematic Diagram</p>  <p>TO-263</p>	
<b>Device</b>	<b>Package</b>	<b>Marking</b>	<b>Packaging</b>
GT025N06AM	TO-263	GT025N06	800psc/Reel

### Absolute Maximum Ratings $T_C = 25^\circ C$ , 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	$V_{GS}$	$\pm 20$	V
Single pulse avalanche energy (note2)	$E_{AS}$	420	mJ
Power Dissipation	$P_D$	215	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 To 150	$^\circ C$

### Thermal Resistance

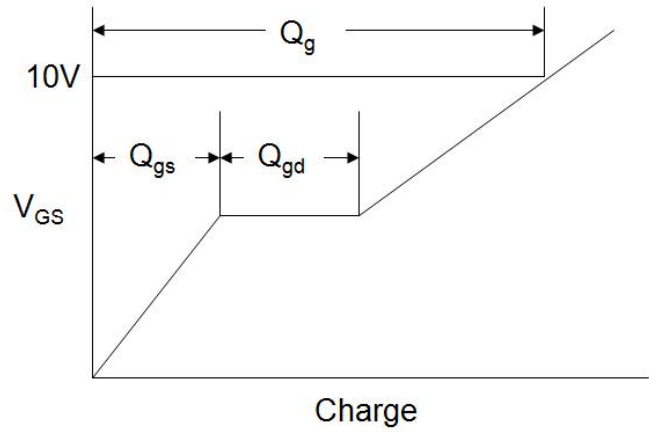
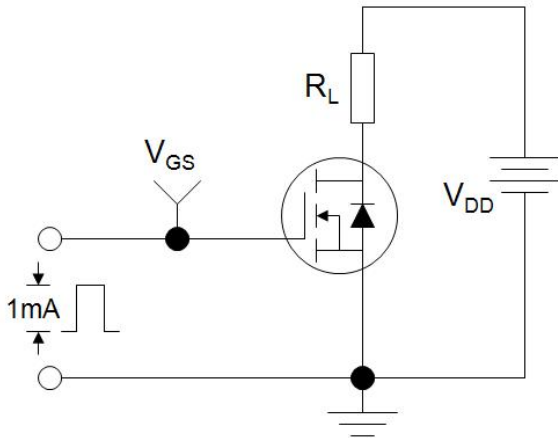
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{thJA}$	50	$^\circ C/W$
Maximum Junction-to-Case	$R_{thJC}$	0.58	$^\circ C/W$

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	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	2.5	m $\Omega$
		$V_{GS} = 4.5V, I_D = 15A$	--	2.5	3	
Forward Transconductance	$g_{FS}$	$V_{DS} = 5V, I_D = 20A$	--	60	--	S
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V,$ $V_{DS} = 30V,$ $f = 1.0\text{MHz}$	--	5119	--	pF
Output Capacitance	$C_{oss}$		--	1347	--	
Reverse Transfer Capacitance	$C_{rss}$		--	78	--	
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	$I_S$	$T_C = 25^\circ\text{C}$	--	--	170	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

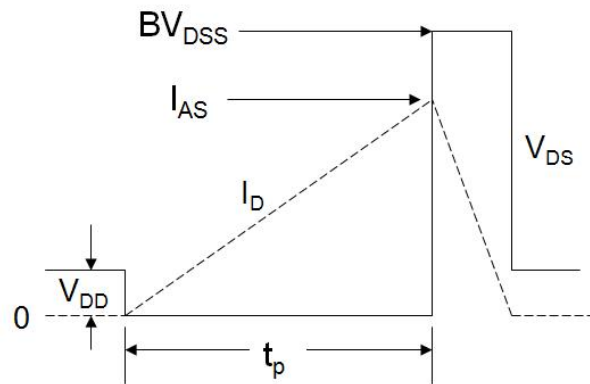
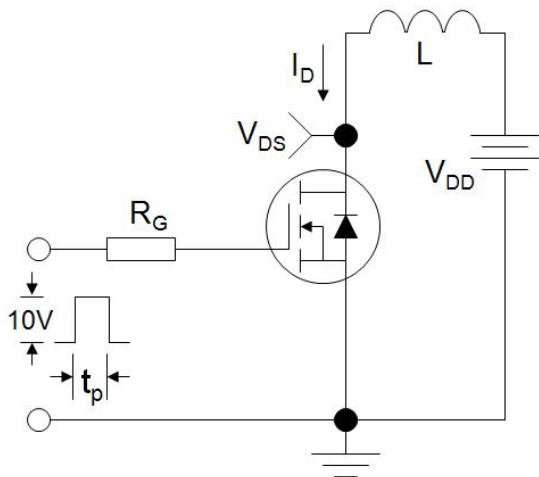
### Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical  $R_G$
3. EAS condition :  $T_J = 25^\circ\text{C}$  ,  $V_{DD} = 50V, V_{GS} = 10V, L = 0.5\text{mH}, R_g = 25\Omega$

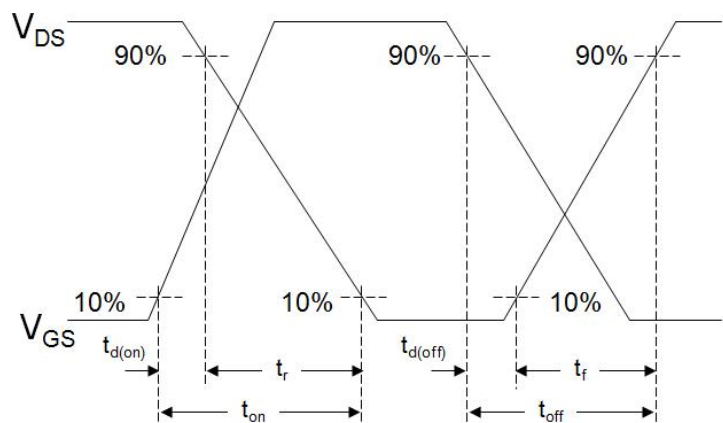
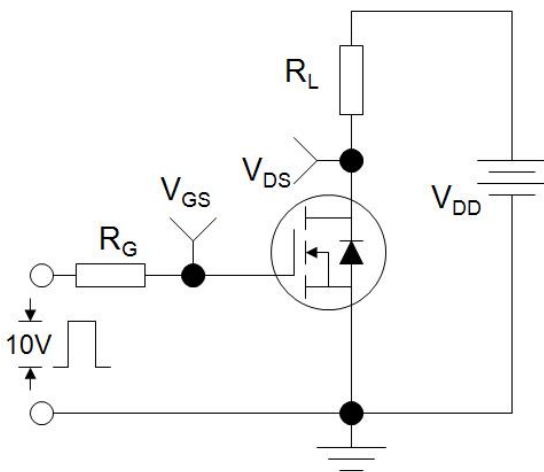
### Gate Charge Test Circuit



### EAS Test Circuit

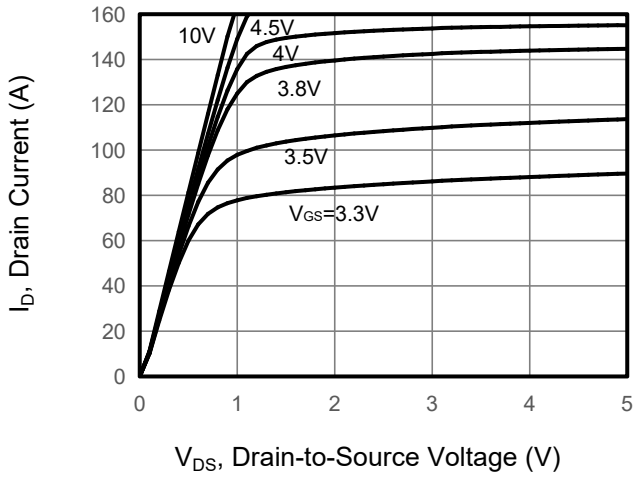


### Switch Time Test Circuit

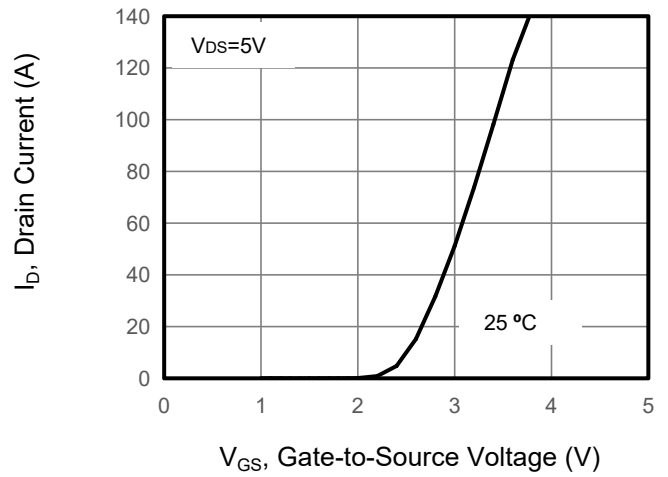


Typical Characteristics  $T_J = 25^\circ\text{C}$ , unless otherwise noted

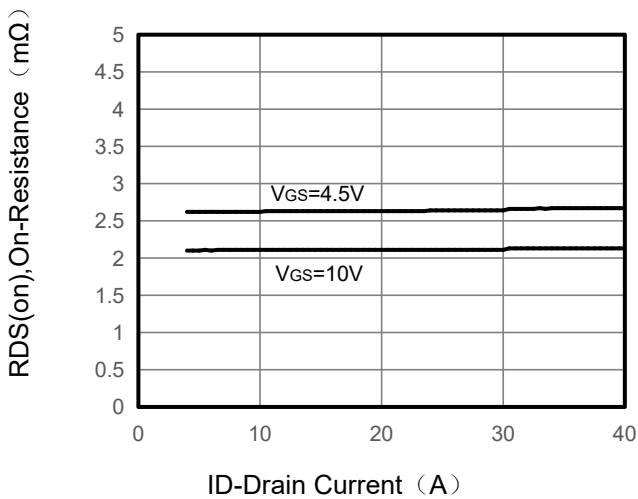
**Figure 1. Output Characteristics**



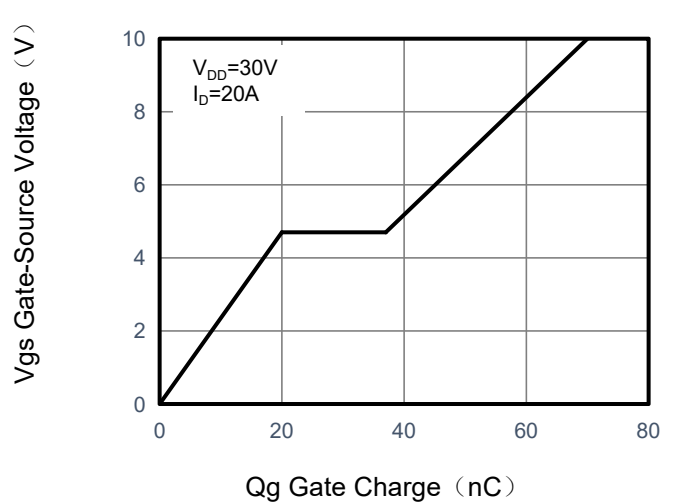
**Figure 2. Transfer Characteristics**



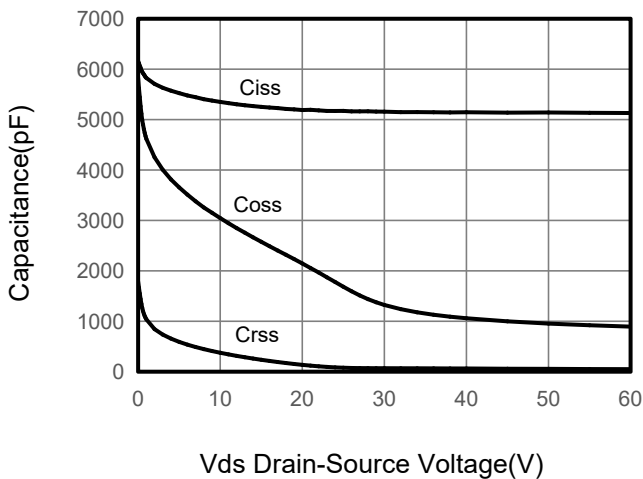
**Figure 3. Drain Source On Resistance**



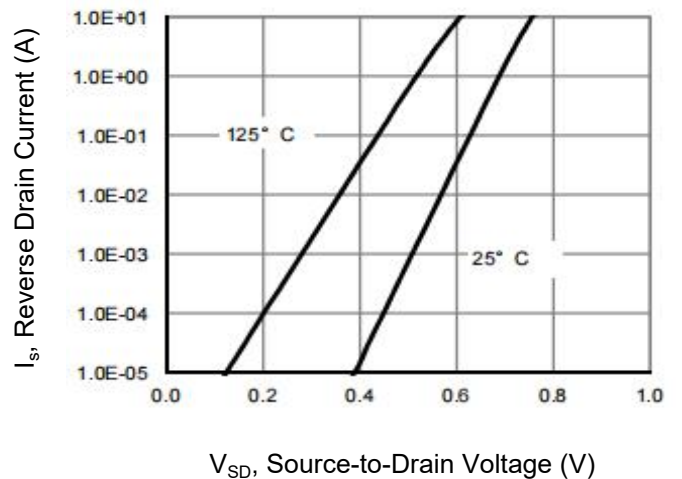
**Figure 4. Gate Charge**



**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

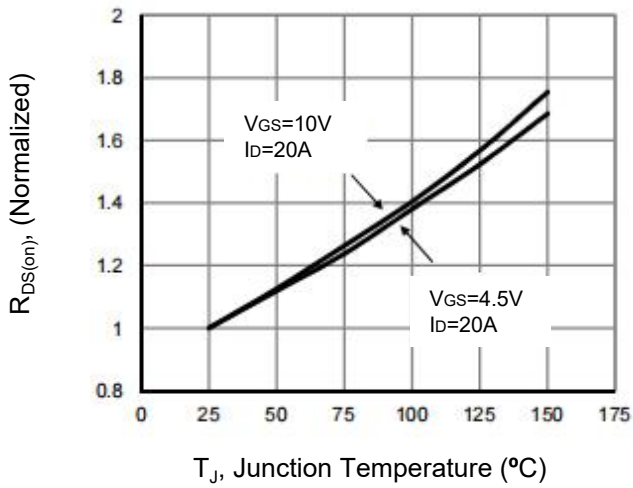


Figure 8. Safe Operation Area

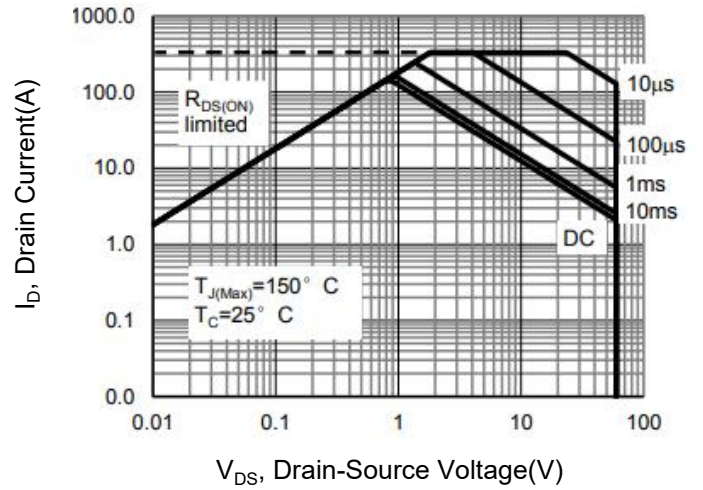
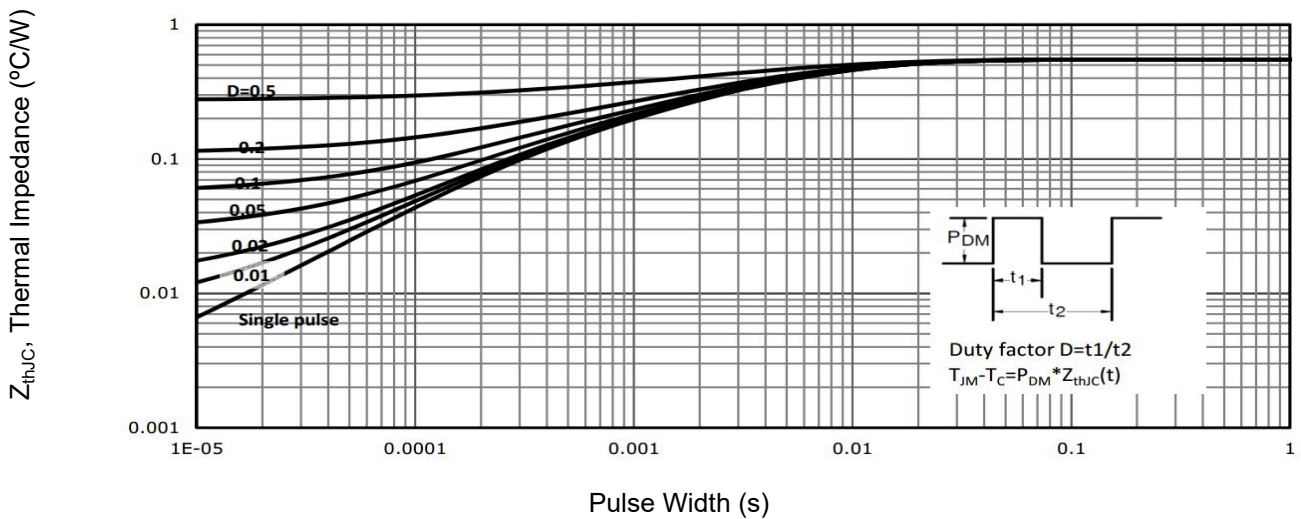
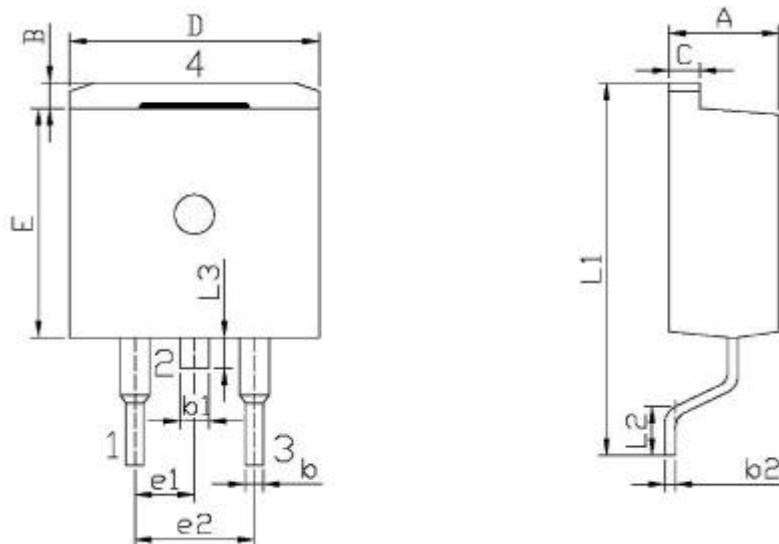


Figure 9. Normalized Maximum Transient Thermal Impedance



## TO-263 Package Mechanical Data



UNIT:mm

	MIN	MAX
A	4.30	4.70
B	1.00	1.40
b	0.70	0.90
b1	1.15	1.35
b2	0.40	0.60
C	1.20	1.40
D	9.80	10.20
E	9.00	9.40
e1	2.34	2.74
e2	4.88	5.28
L1	15.00	16.00
L2	2.24	2.84
L3	1.20	1.60