N-Channel Enhancement Mode Power MOSFET

Description

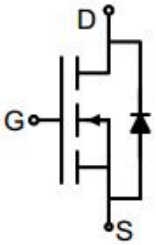
The GT025N06AT uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

General Features

- V_{DS} 60V
- I_D (at V_{GS} = 10V) 170A
- $R_{DS(ON)}$ (at V_{GS} = 10V) < 2.5mΩ
- $R_{DS(ON)}$ (at V_{GS} = 4.5V) < 3.2mΩ
- 100% Avalanche Tested
- RoHS Compliant

Application

- Power switch
- DC/DC converters
- Synchronous Rectification



Schematic Diagram

TO-220

Ordering Information

Device	Package	Marking	Packaging
GT025N06AT	TO-220	GT025N06	50pcs/Tube

Absolute Maximum Ratings T_C = 25ºC, 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}	680	A
Gate-Source Voltage	V_{GS}	±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	ºC

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	R_{thJA}	50	ºC/W
Maximum Junction-to-Case	R_{thJC}	0.58	ºC/W

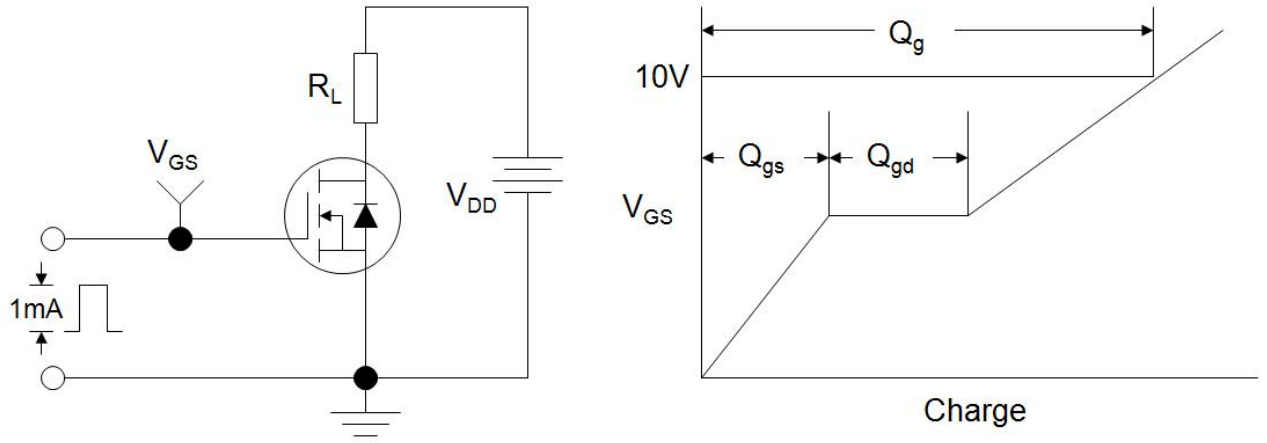
Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V	--	--	1	μA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.2	1.6	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A	--	2	2.5	mΩ
		V_{GS} = 4.5V, I_D = 15A	--	2.6	3.2	
Forward Transconductance	g_{FS}	V_{DS} = 5V,I_D = 20A	--	63	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 30V, f = 1.0MHz	--	4954	--	pF
Output Capacitance	C_{oss}		--	1378	--	
Reverse Transfer Capacitance	C_{rss}		--	68	--	
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 = 3Ω	--	16	--	ns
Turn-on Rise Time	t_r		--	9	--	
Turn-off Delay Time	$t_{d(off)}$		--	36	--	
Turn-off Fall Time	t_f		--	11	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	170	A
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = 20A, V_{GS} = 0V	--	--	1.2	V
Reverse Recovery Chrage	Qrr	I_F = 20A, V_{GS} = 0V di/dt = 500A/us	--	150	--	nC
Reverse Recovery Time	Trr		--	30	--	ns

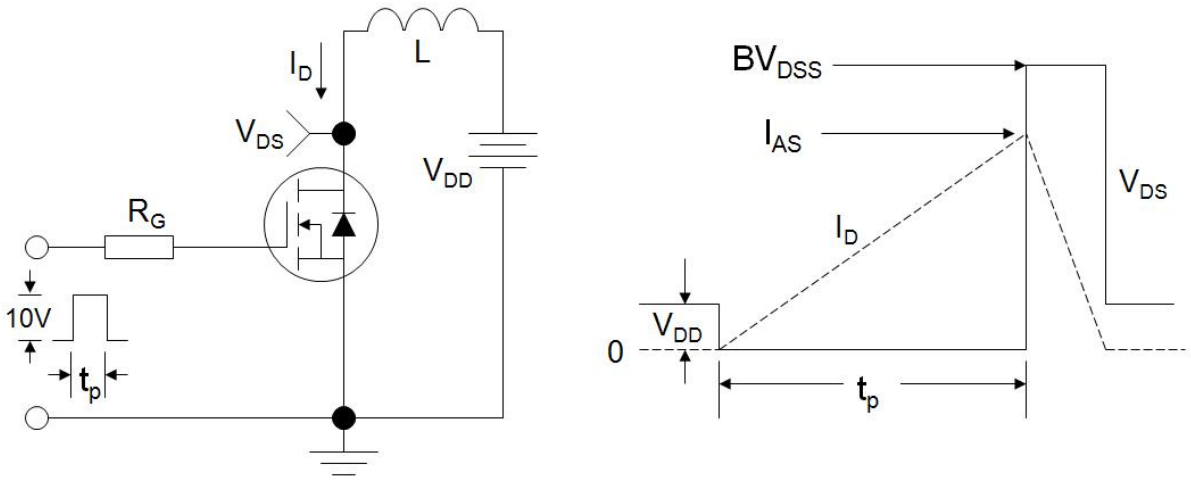
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition : Tj=25℃ ,VDD=50V,VGS=10V,L=0.5mH,Rg=25Ω
3. Identical low side and high side switch with identical RG

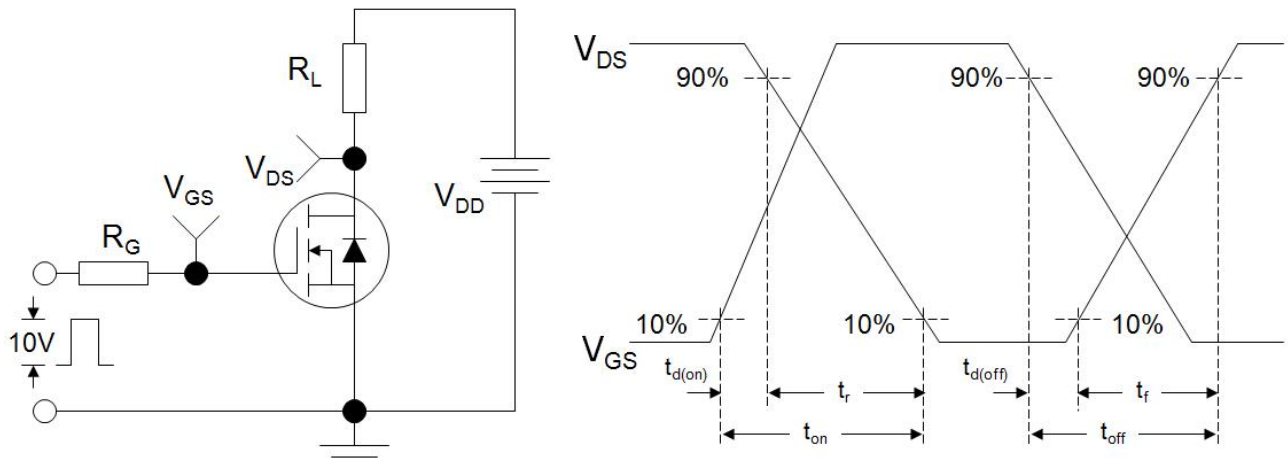
Gate Charge Test Circuit



EAS Test Circuit



Switch Time Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

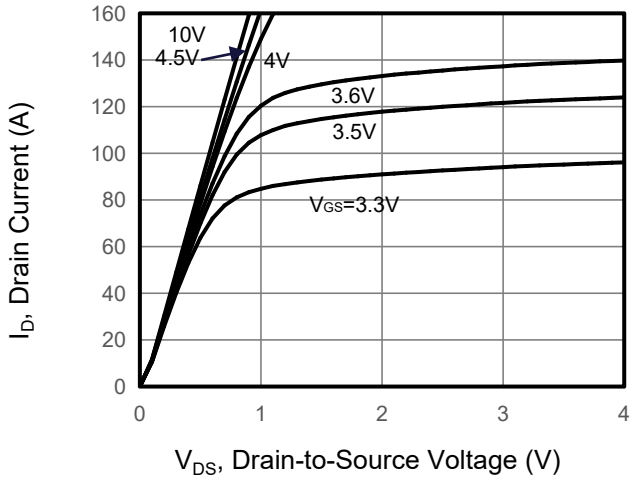


Figure 2. Transfer Characteristics

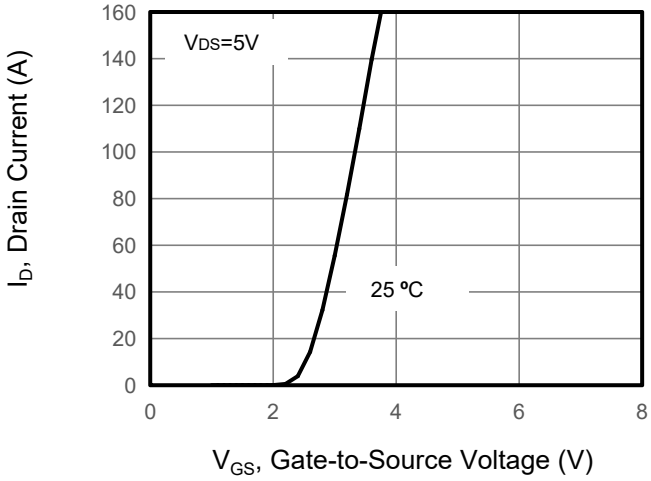


Figure 3. Drain Source On Resistance

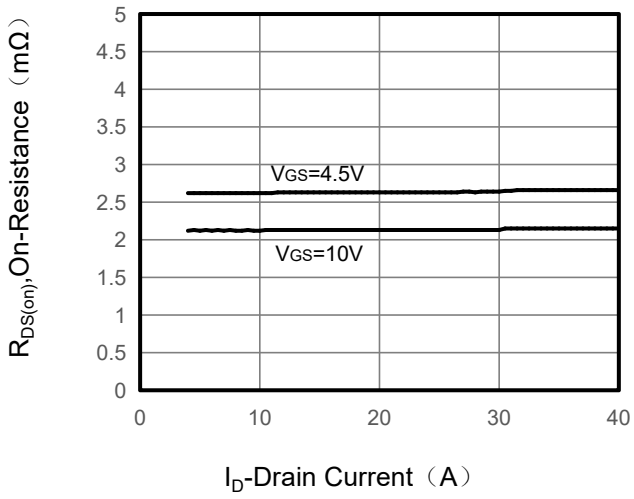


Figure 4. Gate Charge

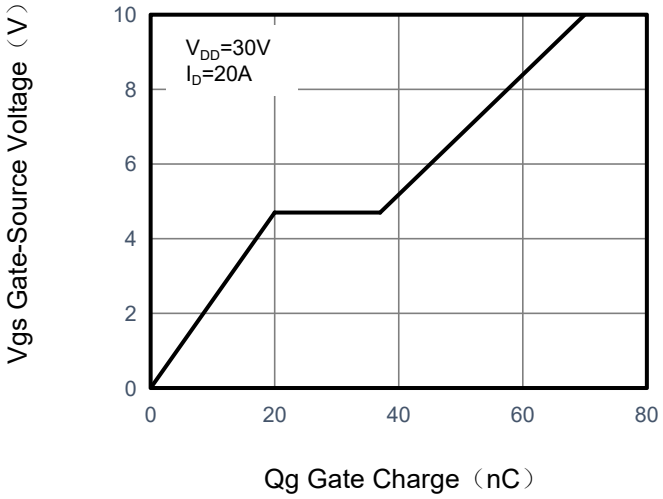


Figure 5. Capacitance vs Vds

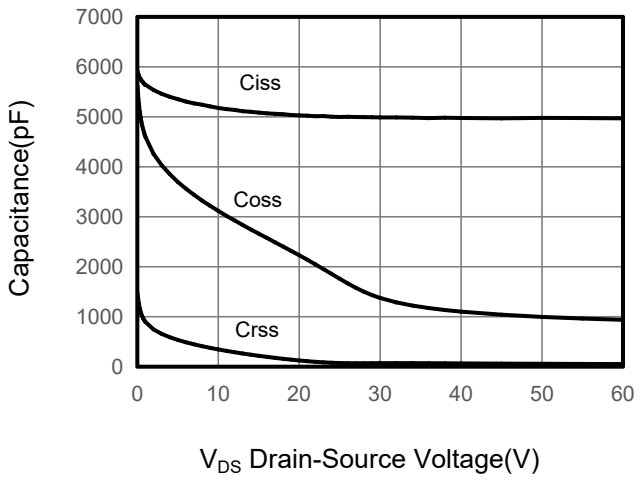
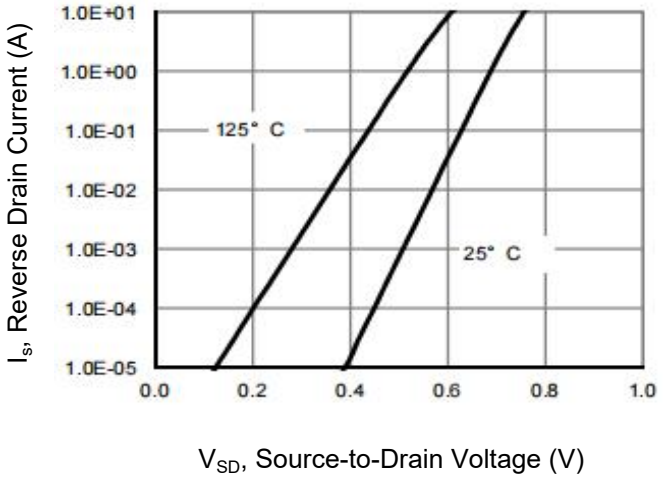


Figure 6. Source-Drain Diode Forward



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance

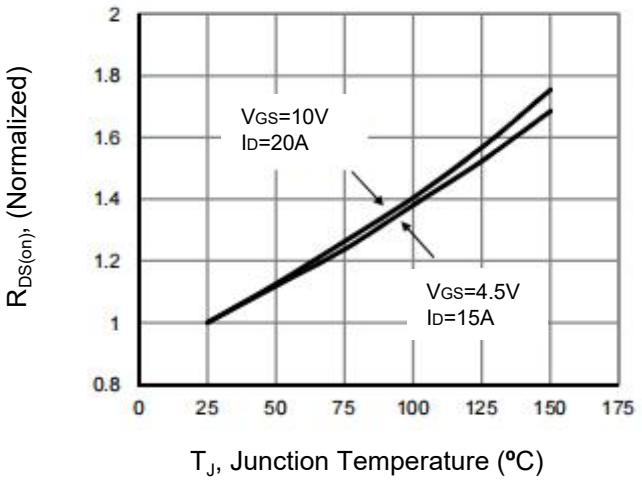


Figure 8. Safe Operation Area

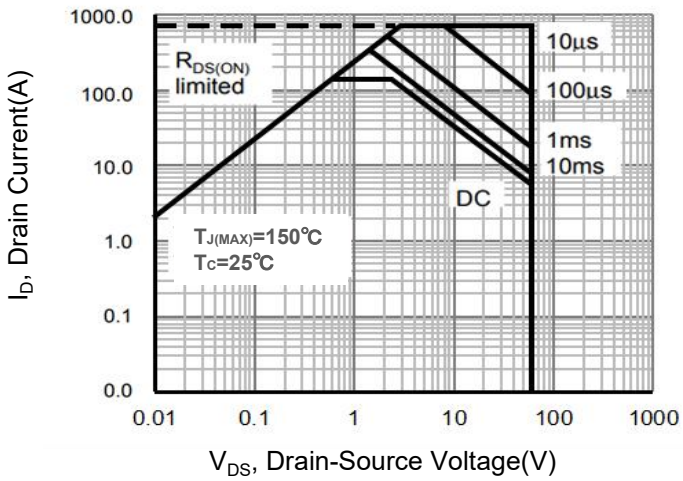
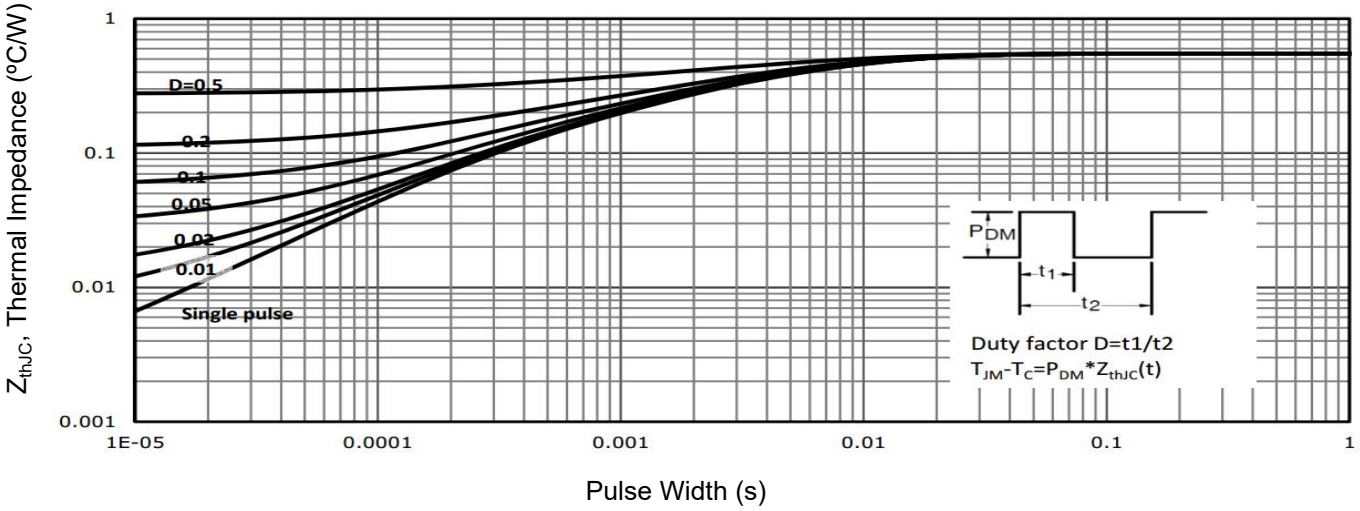
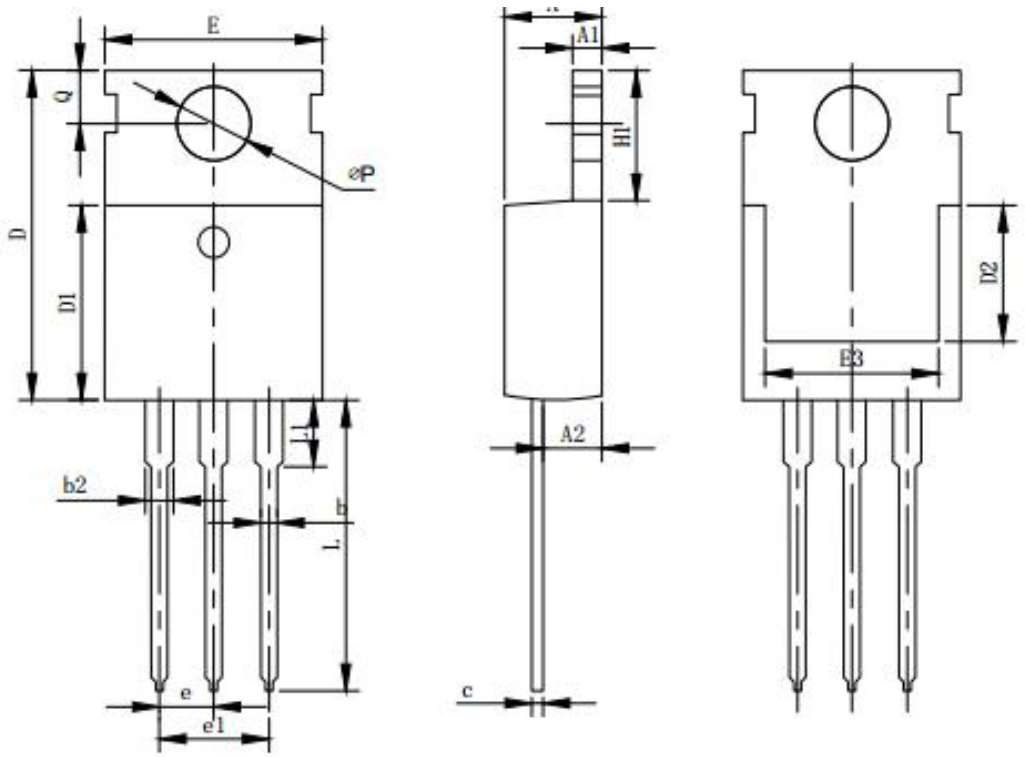


Figure 9. Normalized Maximum Transient Thermal Impedance



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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by GOFORD ***manufacturer:***

Other Similar products are found below :

IRFD120 JANTX2N5237 BUK455-60A/B MIC4420CM-TR VN1206L NDP4060 SI4482DY IPS70R2K0CEAKMA1 SQD23N06-31L-GE3 TK16J60W,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 DMN1053UCP4-7 SQJ469EP-T1-GE3 NTE2384 DMC2700UDMQ-7 DMN2080UCB4-7 DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 DMP22D4UFO-7B DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 IRF40H233XTMA1 STU5N65M6 DMN6022SSD-13 DMN13M9UCA6-7 DMTH10H4M6SPS-13 DMN2990UFB-7B IPB80P04P405ATMA2 2N7002W-G MCAC30N06Y-TP MCQ7328-TP NTMC083NP10M5L BXP7N65D BXP4N65F AOL1454G WMJ80N60C4 BXP2N20L BXP2N65D BXT1150N10J BXT1700P06M TSM60NB380CP ROG RQ7L055BGTCR DMNH15H110SK3-13 SLF10N65ABV2 BSO203SP BSO211P IPA60R230P6