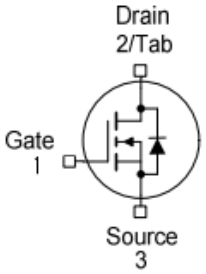
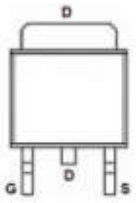
GD35N06
N-Channel MOSFET
60V, 35A, $R_{DS(ON)}$<45mΩ



General Description and Features

- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Excellent switching characteristics
- Low gate charge
- Extended safe operating area
- Lower $R_{DS(ON)}$: 32mΩ (Typical) @ VGS = 10V
- 100% avalanche tested
- Improved dv/dt capability
- RoHS compliant
- JEDEC qualification

TO-252



Pin assignment

Absolute Maximum Ratings (Ta=25 ℃)

Symbol	Parameter		Value	Unit
BV_{DSS}	Drain-Source Voltage		60	V
BV_{GSS}	Gate-Source Voltage		±20	V
I_D	Drain Current continuous Tc=25℃		35	A
I_{DM}	Drain Current - pulse		140	A
P_D	Power Dissipation	Tc=25℃	35	W
		Derated above 25℃	0.23	W/℃
T_J, T_{STG}	Operating and Storage Temperature Range		-55～+175	℃
T_L	Maximum Lead Temperature for Soldering		260	℃

Thermal Characteristics

Symbol	Parameter	TO-252	Unit
$R_{\theta JC}$	Thermal Resistance ,Junction to Case	3	℃/W
$R_{\theta JA}$	Thermal Resistance ,Junction to Ambient	75	℃/W

Electrical Characteristics(Tc=25℃ unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
Off state characteristics						
BV_{DSS}	Drain to Source breakdown Voltage	I_D=250μA,V_{GS}=0V	60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V,V_{GS}=0V	-	-	1	μA
I_{GSS}	Gate to Source Leakage Current	V_{GS}=±16V,V_{DS}=0V	-	-	±100	nA

On state characteristics						
$V_{GS(th)}$	Gate to Source Threshold Voltage	I_D=250μA,V_{GS}=V_{DS}	1	1.6	2.5	V
$R_{DS(on)}$	Drain to Source On-Resistance	I_D=16A,V_{GS}=10V	-	32	45	mΩ
gfs	Forward Transconductance	V_{DS}=25V,I_D=18A	-	25	-	S
Dynamic characteristics						
C_{ISS}	Input Capacitance	V_{DS}=30V,V_{GS}=0V,f=1MHz	-	650	-	pF
C_{OSS}	Output Capacitance		-	95	-	pF
C_{RSS}	Reverse Transfer Capacitance		-	60	-	pF
Switching characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=30V,I_D=1A, V_{GS}=10V,RG=6.8Ω	-	18	-	ns
t_r	Rise Time		-	15	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	60	-	ns
t_f	Fall Time		-	31	-	ns
Q_g	Total Gate Charge	V_{DD}=30V,I_D=18A V_{GS}=10V	-	20	-	nC
Q_{gs}	Gate to Emitter Charge		-	7	-	nC
Q_{gd}	Gate to Collector Charge		-	5	-	nC
Source Drain Diode Characteristics						
Symbol	**Parameter**	**Test conditions**	**min**	**typ**	**max**	**unit**
I_S	Maximum Continuous Drain-Source Diode Forward Current		-	-	35	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		-	-	140	A
V_{SD}	Drain to Source Diode Forward Voltage	I_S=20A,V_{GS}=0V	-	-	1.3	V
t_{rr}	Diode Reverse Recovery Time	I_S=20A,V_{GS}=0V di/dt=100A/μS	-	65	-	nS
Q_{rr}	Diode Reverse Recovery Charge		-	85	-	nC

Note:
1.Pulse Test :Pulse Width≤300μs,Duty cycle≤2%.
2.Limited by $T_J$max, starting T_J=25℃,L=0.3mH,R_G=25Ω, I_{AS}=16A, V_{GS}=10V.Part not recommended for use above this value.
3.Repetitive rating: pulse width limited by max. junction temperature.

Ratings and Characteristic Curves

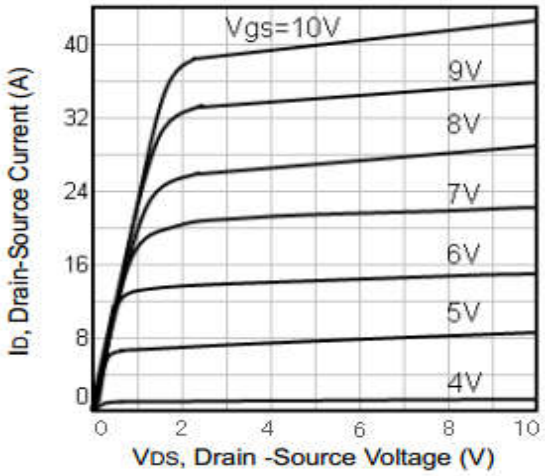


Fig.1 Output Characteristics

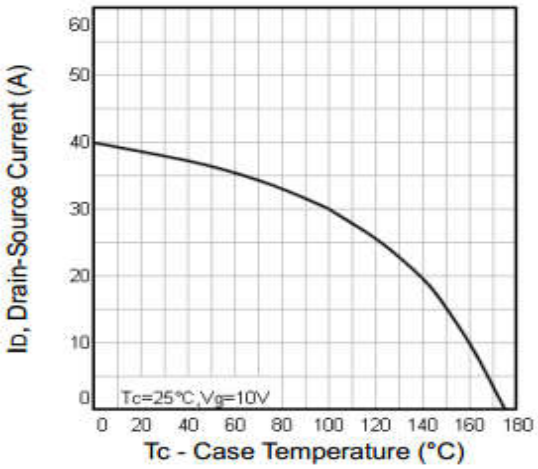


Fig.2 Maximum Drain Current Vs.Case Temperature

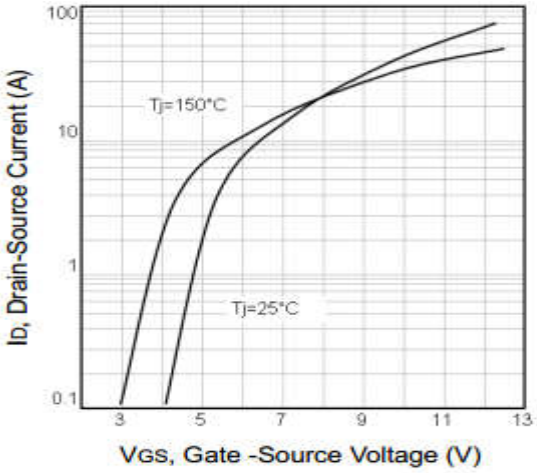


Fig.3 Transfer Characteristics

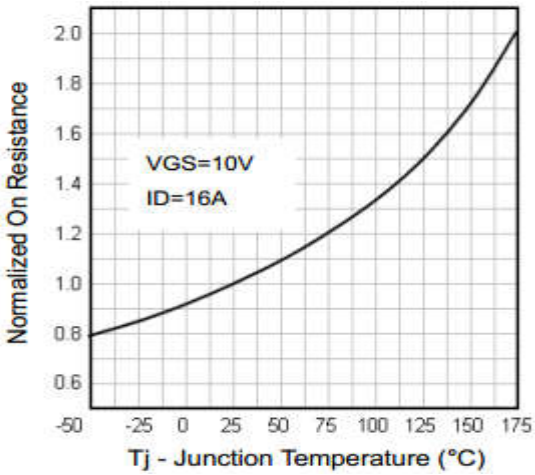


Fig.4 On-Resistance Variation Vs.Temperature

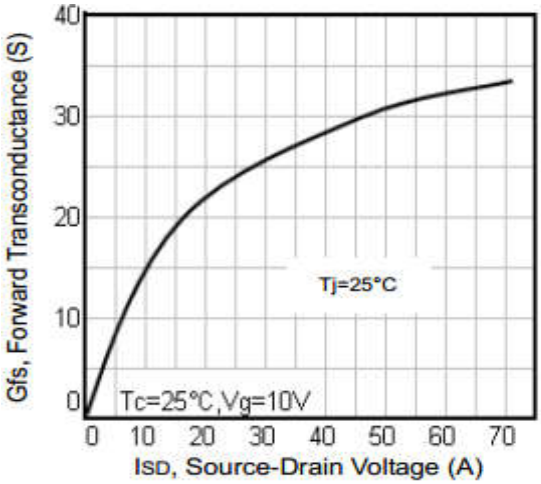


Fig.5 Typical Forward Transconductance Vs. Drain Curren

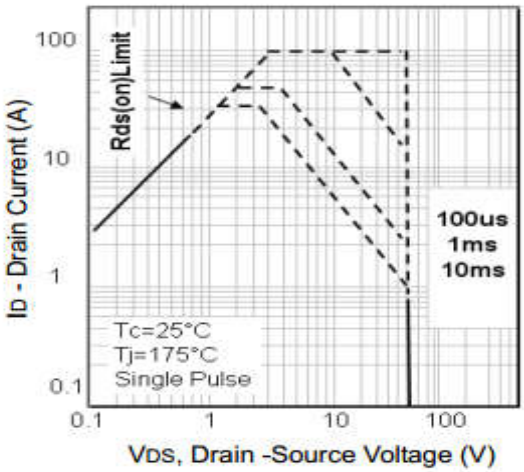


Fig.6 Maximum Safe Operating Area

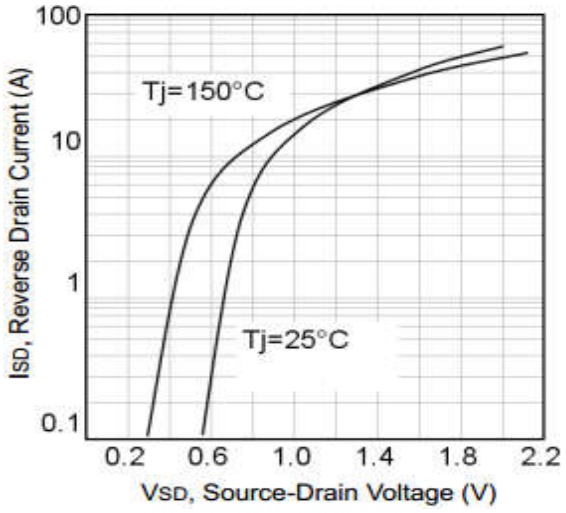


Fig.7 Body Diode Forward Voltage

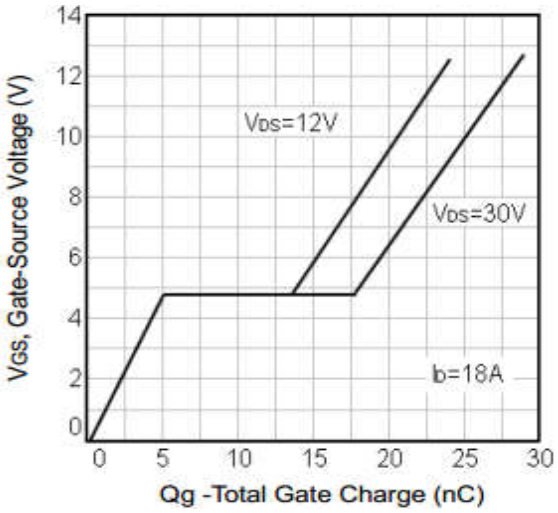


Fig.8 Typical Gate Charge Vs.Gate-Source Voltage

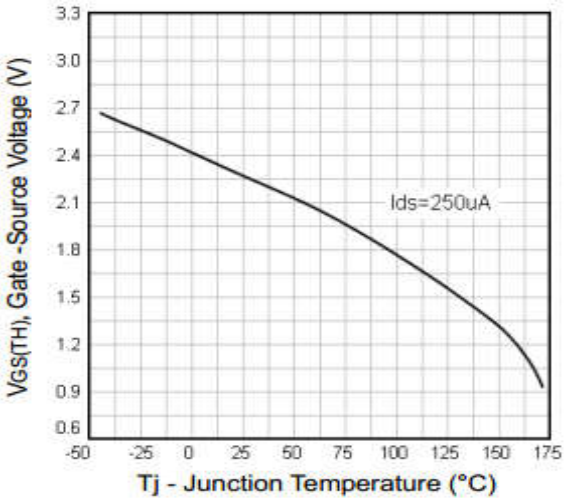


Fig.9 Threshold Voltage Vs. Temperature

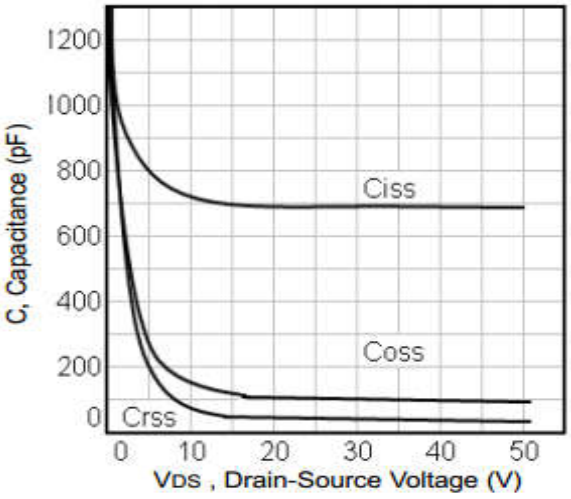
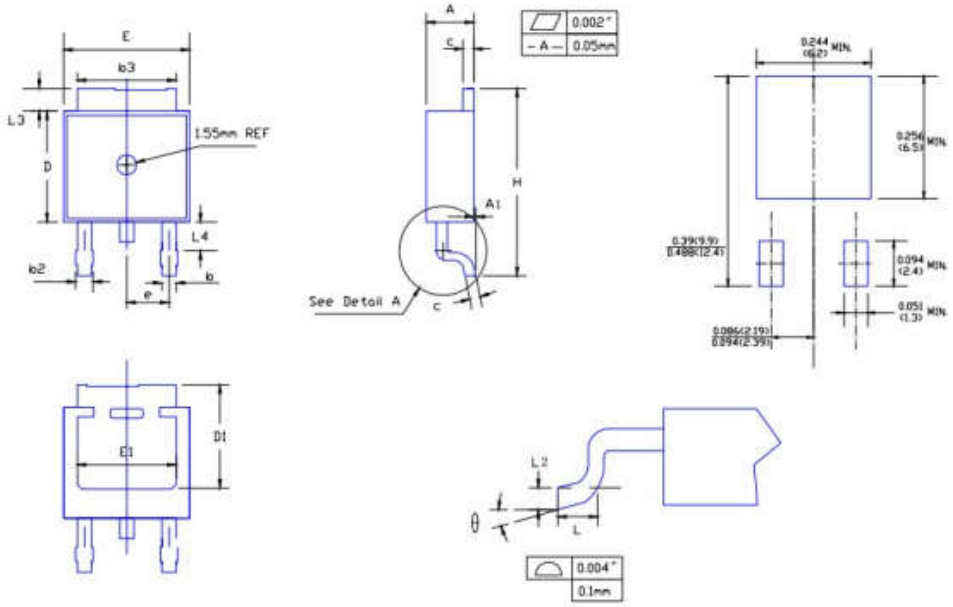


Fig.10 Typical Capacitance Vs.Drain-Source Voltage

TO-252 POD



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.086	0.094	2.19	2.38	
A1	-	0.005	-	0.13	
b	0.025	0.035	0.64	0.89	
b2	0.033	0.045	0.84	1.14	
b3	0.205	0.215	5.21	5.46	
c	0.018	0.024	0.46	0.61	
D	0.235	0.250	5.97	6.22	
D1	0.205	-	5.21	-	
E	0.250	0.265	6.35	6.73	
E1	0.190	-	4.83	-	
e	0.090 BSC.		2.29 BSC.		
H	0.380	0.410	9.65	10.41	
L	0.055	0.070	1.40	1.78	
L2	0.020 BSC.		0.51 BSC.		
L3	0.035	0.050	0.89	1.27	
L4	0.025	0.040	0.64	1.01	
θ	0°	8°	0°	8°	