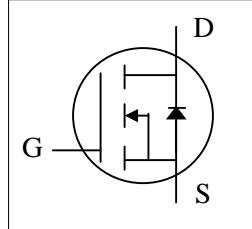




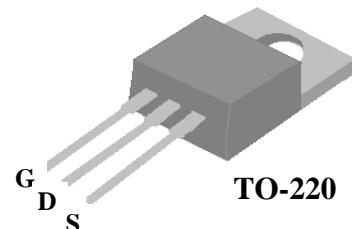
- ▼ Simple Drive Requirement
- ▼ Lower On-resistance
- ▼ Fast Switching Characteristic
- ▼ RoHS Compliant & Halogen-Free



BV_{DSS}	60V
$R_{DS(ON)}$	12mΩ
I_D	80A

Description

GT80N06 series are from YGMOS Power in novated design and silicon process technology to achieve the lowest possible on-resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.



Absolute Maximum Ratings@ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c=25^\circ\text{C}$	Drain Current, $V_{GS} @ 10\text{V}^3$	80	A
$I_D @ T_c=100^\circ\text{C}$	Drain Current, $V_{GS} @ 10\text{V}$	66	A
I_{DM}	Pulsed Drain Current ¹	260	A
$P_D @ T_c=25^\circ\text{C}$	Total Power Dissipation	138	W
	Linear Derating Factor	1.11	W/°C
E_{AS}	Single Pulse Avalanche Energy ⁴	450	mJ
I_{AR}	Avalanche Current	30	A
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Value	Units
R_{thj-c}	Maximum Thermal Resistance, Junction-case	0.9	°C/W
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient (PCB mount) ⁵	40	°C/W
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient	62	°C/W

Electrical Characteristics@ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_D=1\text{mA}$	60	-	-	V
$\Delta \text{BV}_{\text{DSS}}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to 25°C , $\text{I}_D=1\text{mA}$	-	0.05	-	$\text{V}/^\circ\text{C}$
$\text{R}_{\text{DS(ON)}}$	Static Drain-Source On-Resistance ²	$\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_D=45\text{A}$	-	8.5	12	$\text{m}\Omega$
		$\text{V}_{\text{GS}}=4.5\text{V}$, $\text{I}_D=20\text{A}$	-	13	18	$\text{m}\Omega$
$\text{V}_{\text{GS(th)}}$	Gate Threshold Voltage	$\text{V}_{\text{DS}}=\text{V}_{\text{GS}}$, $\text{I}_D=250\mu\text{A}$	1	-	3	V
g_{fs}	Forward Transconductance	$\text{V}_{\text{DS}}=10\text{V}$, $\text{I}_D=45\text{A}$	-	72	-	S
I_{DSS}	Drain-Source Leakage Current	$\text{V}_{\text{DS}}=60\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$	-	-	10	uA
	Drain-Source Leakage Current ($T_j=125^\circ\text{C}$)	$\text{V}_{\text{DS}}=48\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$	-	-	100	uA
I_{GSS}	Gate-Source Leakage	$\text{V}_{\text{GS}}=\pm 20\text{V}$, $\text{V}_{\text{DS}}=0\text{V}$	-	-	± 100	nA
Q_g	Total Gate Charge	$\text{I}_D=45\text{A}$	-	72	115	nC
Q_{gs}	Gate-Source Charge	$\text{V}_{\text{DS}}=48\text{V}$	-	16	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$\text{V}_{\text{GS}}=4.5\text{V}$	-	53	-	nC
$t_{\text{d(on)}}$	Turn-on Delay Time	$\text{V}_{\text{DS}}=30\text{V}$	-	20	-	ns
t_r	Rise Time	$\text{I}_D=45\text{A}$	-	76	-	ns
$t_{\text{d(off)}}$	Turn-off Delay Time	$\text{R}_G=3.3\Omega$	-	67	-	ns
t_f	Fall Time	$\text{V}_{\text{GS}}=10\text{V}$	-	109	-	ns
C_{iss}	Input Capacitance	$\text{V}_{\text{GS}}=0\text{V}$	-	5700	9200	pF
C_{oss}	Output Capacitance	$\text{V}_{\text{DS}}=25\text{V}$	-	900	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	560	-	pF
R_g	Gate Resistance	f=1.0MHz	-	1.1	1.7	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$\text{I}_S=45\text{A}$, $\text{V}_{\text{GS}}=0\text{V}$	-	-	1.3	V
t_{rr}	Reverse Recovery Time	$\text{I}_S=20\text{A}$, $\text{V}_{\text{GS}}=0\text{V}$	-	40	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/ μs	-	60	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Package limitation current is 75A .
- 4.Starting $T_j=25^\circ\text{C}$, $\text{V}_{\text{DD}}=30\text{V}$, $\text{L}=1\text{mH}$, $\text{R}_G=25\Omega$, $\text{I}_{\text{AS}}=30\text{A}$.
- 5.Surface mounted on 1 in² copper pad of FR4 board

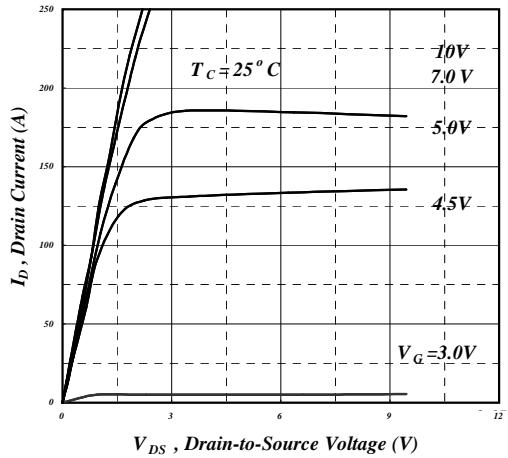


Fig 1. Typical Output Characteristics

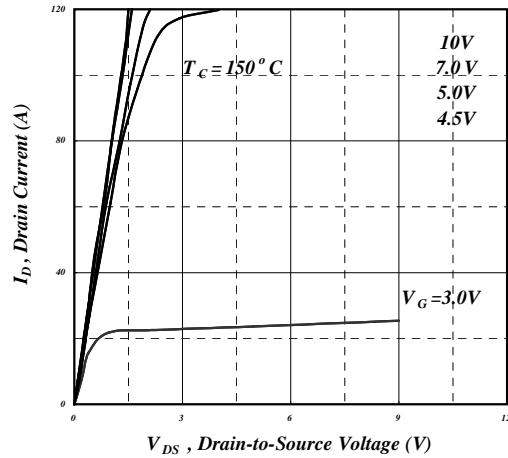


Fig 2. Typical Output Characteristics

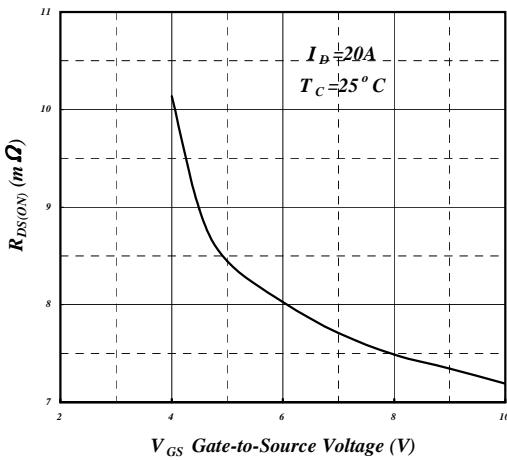


Fig 3. On-Resistance v.s. Gate Voltage

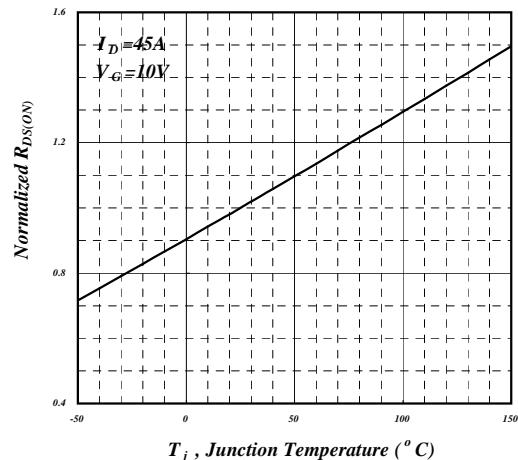


Fig 4. Normalized On-Resistance v.s. Junction Temperature

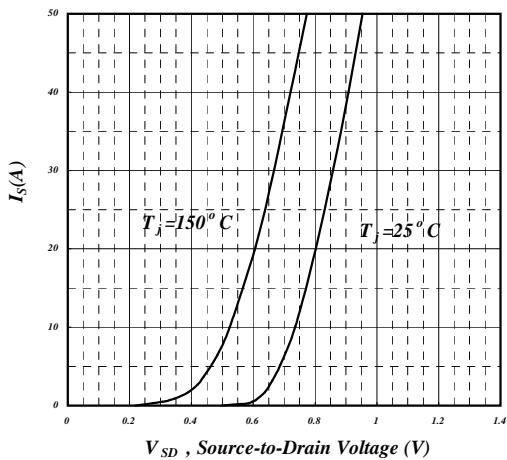


Fig 5. Forward Characteristic of Reverse Diode

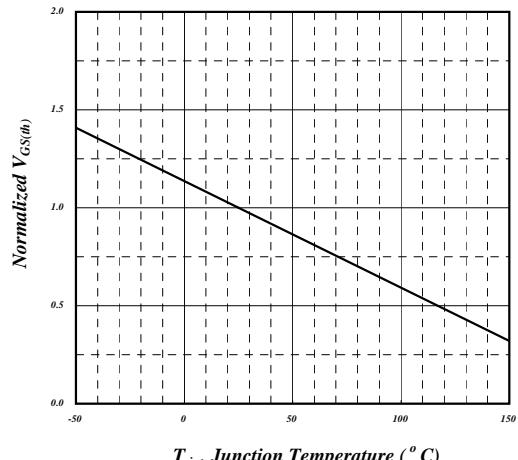


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

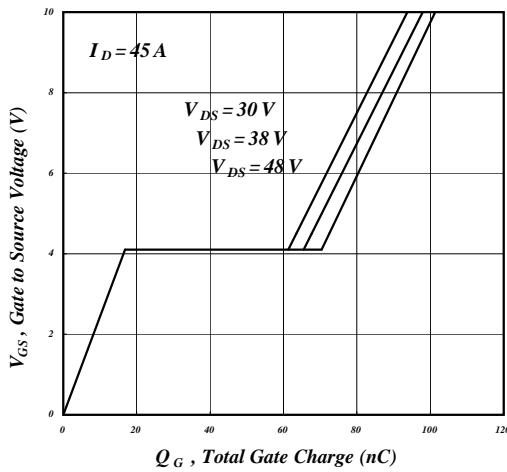


Fig 7. Gate Charge Characteristics

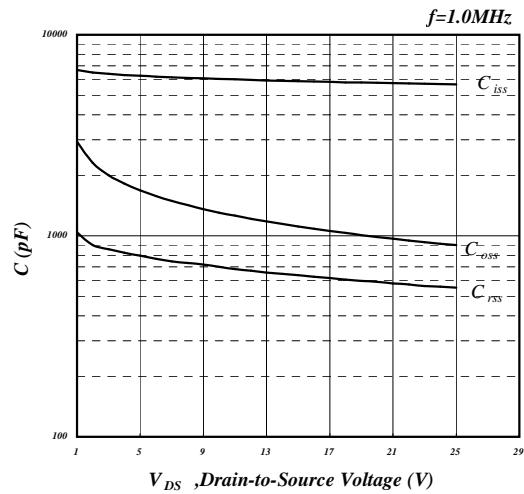


Fig 8. Typical Capacitance Characteristics

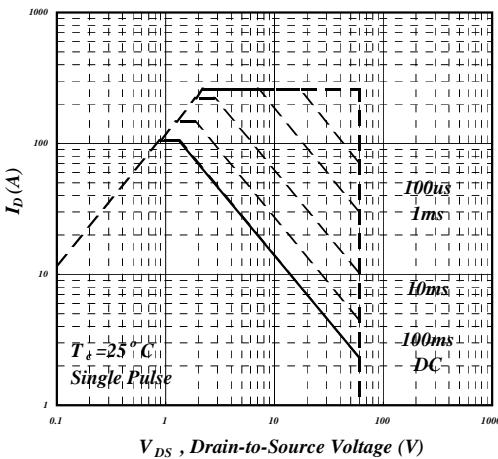


Fig 9. Maximum Safe Operating Area

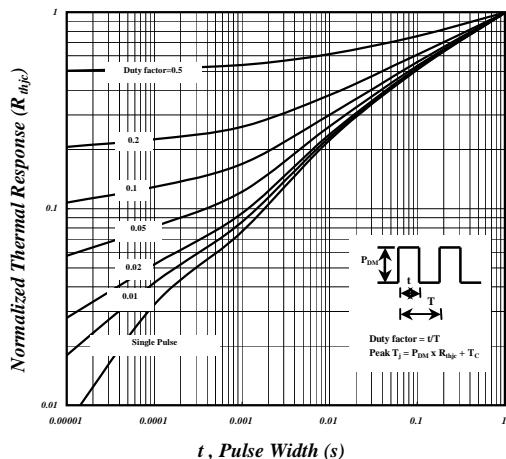


Fig 10. Effective Transient Thermal Impedance

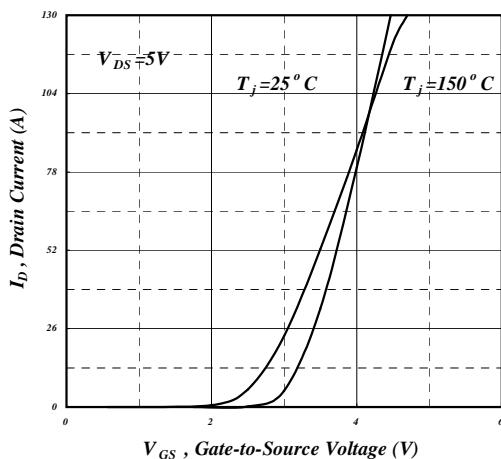


Fig 11. Transfer Characteristics

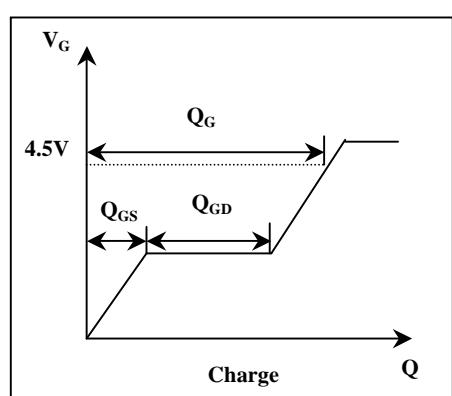


Fig 12. Gate Charge Waveform

MARKING INFORMATION

TO-220

