MOSPEC

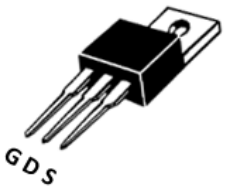
75N200A

200V N-Channel Power MOSFET

BV_{DSS}	200V
I_D	75A
$R_{DS(ON)\ typ.}$	17.5mΩ

DESCRIPTION：
- Fast Recovery Body Diode
- Low Gate Charge Minimize Switching Loss
- Proprietary New Trench Technology
- $R_{DS(ON),typ.}$=17.5mΩ@V_{GS}=10V
- RoHS compliant

TYPICAL APPLICATIONS：
- Motor Control
- SMPS
- Hard Switching and High Speed Circuit



TO-220AB

MAXIMUM RATINGS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Condition	Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	200	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	Tc=25℃ Tc=100℃	I_D	75 53	A
Pulsed Drain Current (1)	V_{GS}=10V	I_{DM}	300	A
Single Pulsed Avalanche Energy	L=10mH	E_{AS}	1100	mJ
Power dissipation	Tc=25℃	P_D	333	W
Junction & Storage temperature Range		T_J, T_{STG}	-55~+150	℃

Notes： 1. Repetitive rating; pulse width limited by maximum junction temperature.

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction – Ambient Junction - Case	$R_{\theta(j\text{-}A)}$ $R_{\theta(j\text{-}C)}$	62 0.45	℃/W

ELECTRICAL CHARATERISTICS (at T_J = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = 250uA	BV_{DSS}	200			V
Zero Gate Voltage Drain Current VDS = 200 V, VGS = 0 V Tj=25℃	I_{DSS}			1	uA
Gate-Source Leakage Current VGS = ±20V, VDS = 0V	I_{GSS}			±100	nA
Gate-Source threshold voltage VDS = VGS, ID = 250uA	$V_{GS(th)}$	2.5		4.5	V
Drain-Source On-State Resistance VGS = 10V, ID = 35A	$R_{DS(on)}$		17.5	20	mΩ
Input capacitance f=1MHz, VDS=100 V, VGS=0 V	C_{iss}		5606		pF
Output capacitance f=1MHz, VDS=100 V, VGS=0 V	C_{oss}		209		pF
Reverse transfer capacitance f=1MHz, VDS=100 V, VGS=0 V	C_{rss}		15.4		pF
Total Gate Charge VDD= 100V, ID= 35A,VGS= 10V	Q_G		77		nC
Gate to Source Charge VDD= 100V, ID= 35A,VGS= 10V	Q_{GS}		29.6		nC
Gate to Drain Charge VDD= 100V, ID= 35A,VGS= 10V	Q_{GD}		17		nC
Turn-on delay time VDD=100 V, VGS= 10V, ID= 35A, R_{GEN}=10Ω	$td_{(ON)}$		45.6		ns
Turn-on Rise time VDD=100 V, VGS= 10V, ID= 35A, R_{GEN}=10Ω	tr		47.8		ns
Turn-off delay time VDD=100 V, VGS= 10V, ID= 35A, R_{GEN}=10Ω	$td_{(OFF)}$		78.4		ns
Turn-off Fall time VDD=100 V, VGS= 10V, ID= 35A, R_{GEN}=10Ω	tf		17		ns

Body Diode

ELECTRICAL CHARATERISTICS (at T_J = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Diode Forward Voltage VGS = 0V, I_S = 35A	V_{SD}			1.2	V
Continuous Source Current	I_{SD}			75	A
Revers Recovery Time IF=35A, dIF/dt = 100A/us□	Trr		149		ns
Revers Recovery Charge IF=35A, dIF/dt = 100A/us	Qrr		429		nC

Typical Characteristics

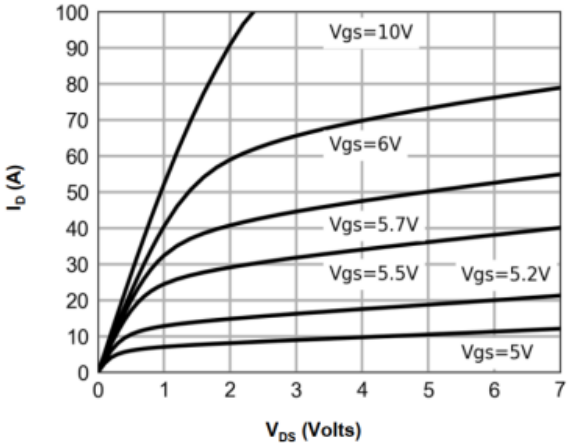


Figure 1. On-Region Characteristics

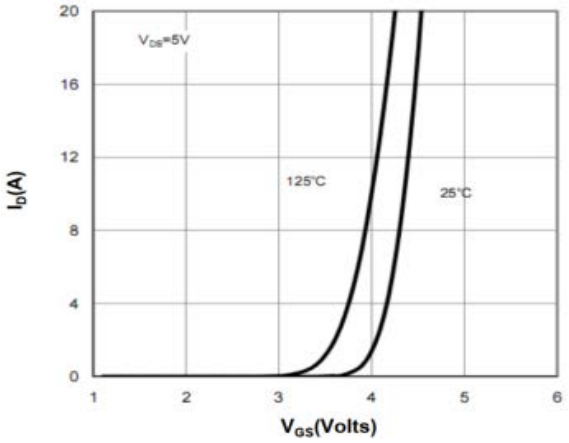


Figure 2. Transfer Characteristics

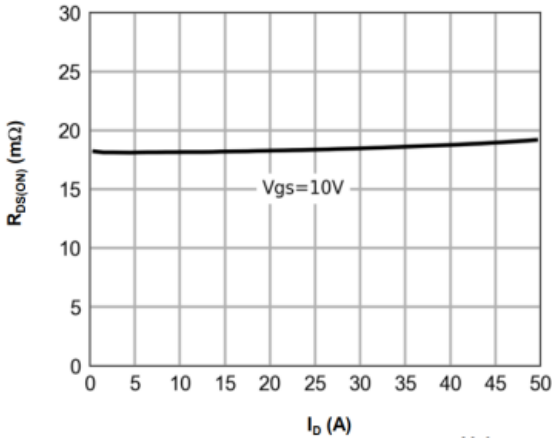


Figure 3. On-resistance vs. Drain Current and Gate Voltage

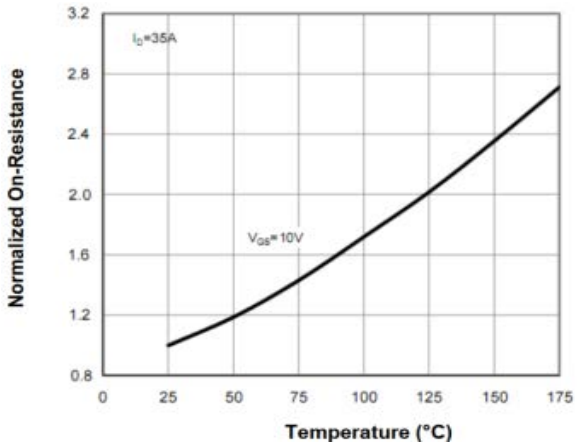


Figure 4. On-resistance vs. Junction Temperature

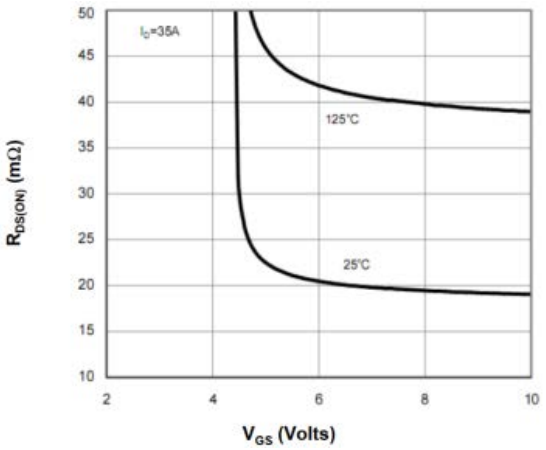


Figure 5. On-resistance vs. Gate-Source Voltage

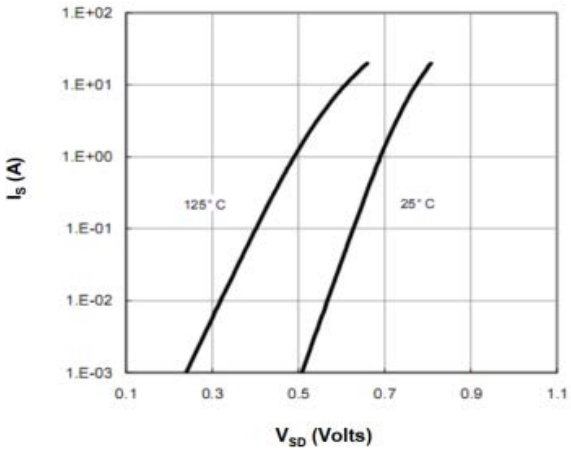


Figure 6. Body-Diode Characteristics

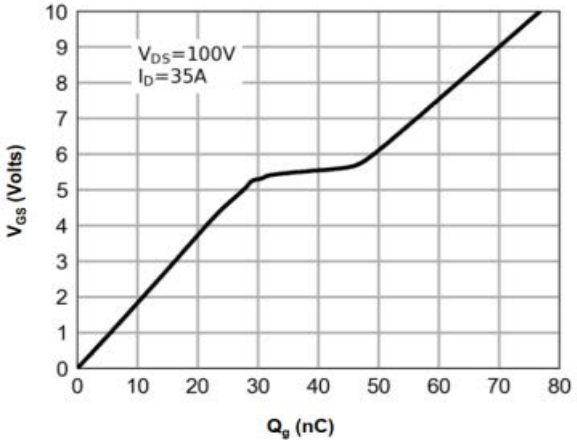


Figure 7. Gate Charge Characteristics

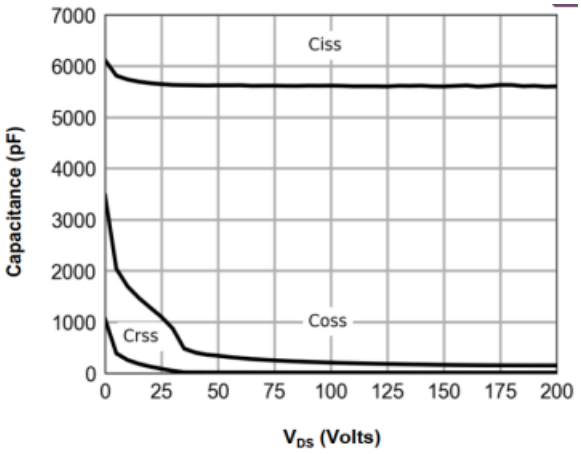


Figure 8. Capacitance Characteristics

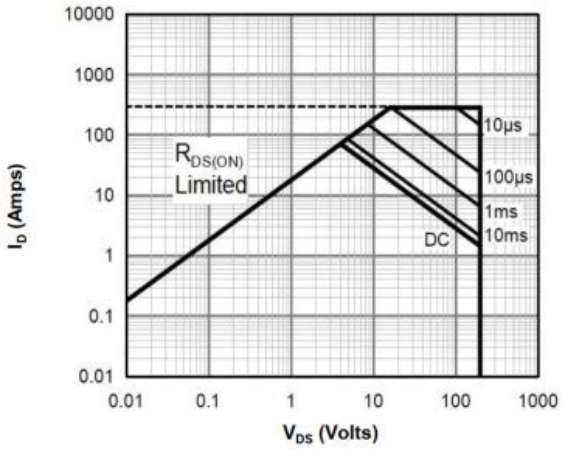
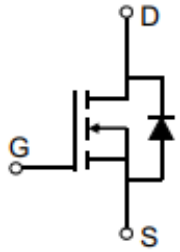
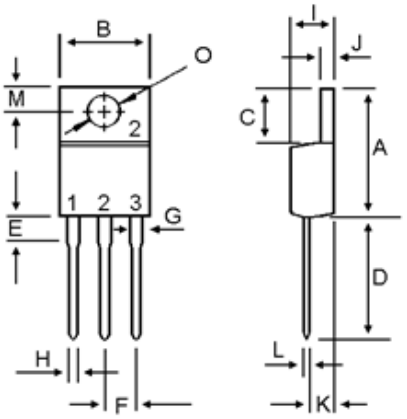


Figure 9. Safe Operating Area

• Circuit diagram



• TO-220AB Package outlines : Dimensions in (mm)



DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.20
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	2.41	2.67
G	1.10	1.67
H	0.69	1.01
I	4.22	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
O	3.40	4.00

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