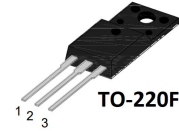
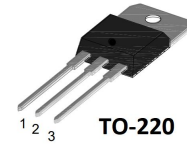


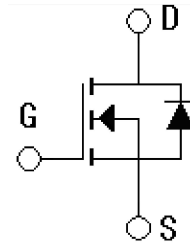
Features

- Low gate charge (typical 51.5nC)
- Low Crss(typical 16.9pF)
- Fast switchin
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product



Applications

- LED power supplies
- High frequency switch mode power supplies
- Electronic lamp ballasts based on half bridge



Absolute Ratings (Tc=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	600	V
Drain Current-continuous	I _D T=25°C T=100°C	10*	A
		6.0*	A
Drain Current-pulse (note 1)	I _{DM}	40*	A
Gate-Source Voltage	V _{GSS}	±30	V
Single pulse avalanche energy (note 2)	E _{AS}	1050	mJ
Avalanche Current (note 1)	I _{AR}	10	A
Repetitive Avalanche Energy(note 1)	E _{AR}	15.6	mJ
Power Dissipation (TO-220F)	PD TC=25°C Derate above 25°C	40	W
		0.32	W/°C
Power Dissipation (TO-220)	PD TC=25°C Derate above 25°C	160	W
		1.28	W/°C
Operating and Storage Temperature Range	T _J , T _{STG}	-55~+150	°C
Peak Diode Recovery dv/dt (note 3)	dv/dt	5.0	V/ns
Maximum Lead Temperature for Soldering Purposes	T _L	300	°C

*Drain current limited by maximum junction temperature

Electrical Characteristics($T_{CASE}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	600	-	-	V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, referenced to $25^{\circ}C$	-	0.6	-	V/ $^{\circ}C$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=600V, V_{GS}=0V, T_C=25^{\circ}C$	-	-	10	μA
		$V_{DS}=480V, T_C=125^{\circ}C$	-	-	100	μA
Gate body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5.0A$	-	0.65	0.85	Ω
Forward Transconductance	g_{FS}	$V_{DS}=40V, I_D=5.0A$ (note 4)	-	5.7	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHZ$	-	1435	1800	pF
Output capacitance	C_{oss}		-	151.4	200	pF
Reverse transfer capacitance	C_{rss}		-	16.9	30	pF

Electrical Characteristics($T_{CASE}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	$V_{DD}=300V, I_D=10A, R_{GEN}=25\Omega$ (note 4,5)	-	31.2	65	ns
Turn-On rise time	t_r		-	57.6	95	ns
Turn-Off delay time	$t_{d(off)}$		-	96	135	ns
Turn-Off rise time	t_f		-	52.8	95	ns
Total Gate Charge	Q_g	$V_{DS}=480V, I_D=10A, V_{GS}=10V$ (note 4,5)	-	51.5	75	nC
Gate-Source charge	Q_{gs}		-	7.3		nC
Gate-Drain charge	Q_{gd}		-	18		nC

Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage (note 3)	V_{SD}	$V_{GS}=0V, I_S=10A$	-	-	1.2	V
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	-	-	-	40	A
Maximum Continuous Drain Source Diode Forward Current	I_S	-	-	-	10	A
Reverse recovery time	t_{rr}	$V_{GS}=0V,$ $I_S=10A$	-	405	-	ns
Reverse recovery charge	Q_{rr}	$di_F/dt=100A/\mu s$ (note 4)	-	9.0	-	μC

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case (TO-220F)	$R_{th(j-C)}$	3.1	$^{\circ}C/W$
Thermal Resistance, Junction to Ambient (TO-220F)	$R_{th(j-A)}$	56	$^{\circ}C/W$
Thermal Resistance, junction to Case (TO-220)	$R_{th(j-C)}$	0.78	$^{\circ}C/W$
Thermal Resistance, Junction to Ambient (TO-220)	$R_{th(j-A)}$	76	$^{\circ}C/W$

Order Message

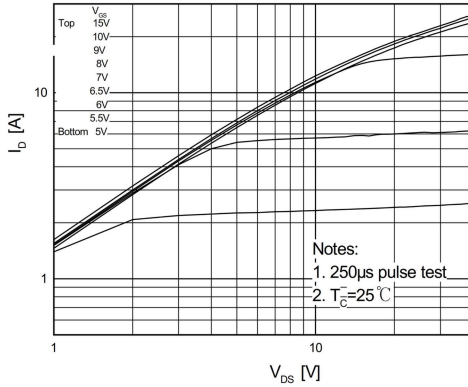
Order codes	Package	Packaging
MS10N60FT	TO-220	Tube
MS10N60FS	TO-220F	Tube

Notes:

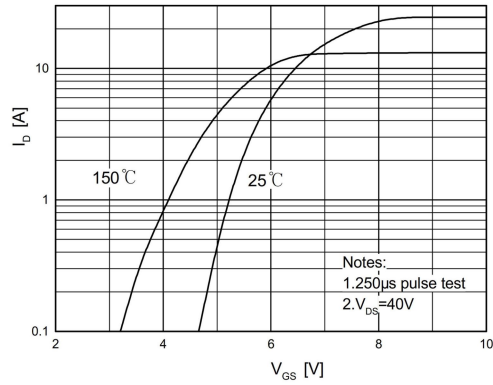
1. Pulse width limited by maximum junction temperature
2. $L=19mH, I_{AS}=10A, V_{DD}=50V, R_G=25 \Omega$, Starting $T_J=25^{\circ}C$
3. $I_{SD} \leq 10A, di/dt \leq 300A/\mu s, V_{DD} \leq BV_{DSS}$, Starting $T_J=25^{\circ}C$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
5. Essentially independent of operating temperature

ELECTRICAL CHARACTERISTICS (curves)

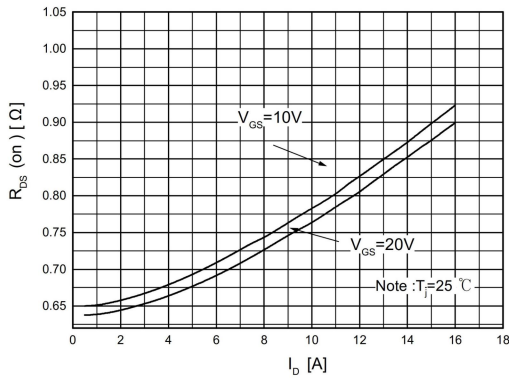
On-Region Characteristics



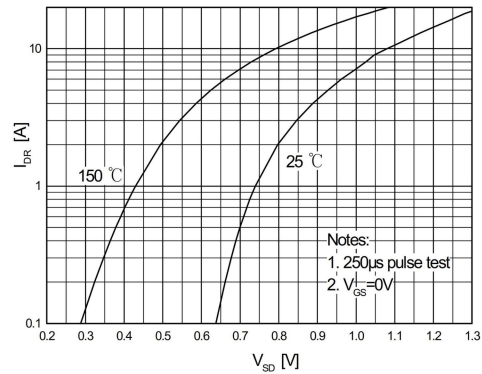
Transfer Characteristics



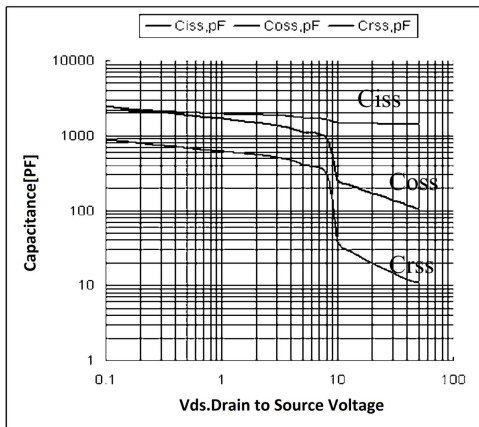
On-Resistance Variation vs. Drain Current Gate Voltage



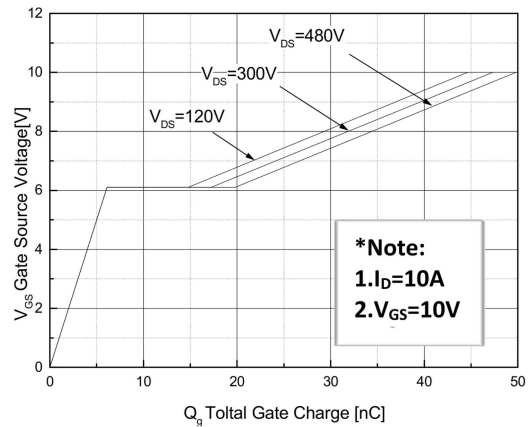
Body Diode Forward Voltage Variation vs. Source Current and Temperature



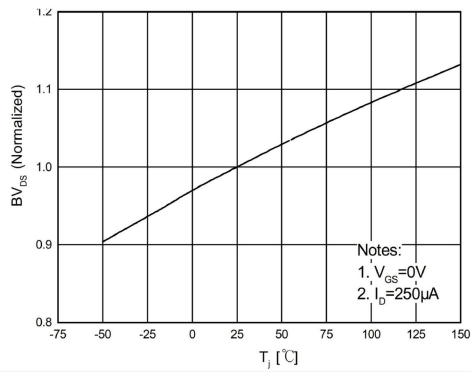
Capacitance Characteristics



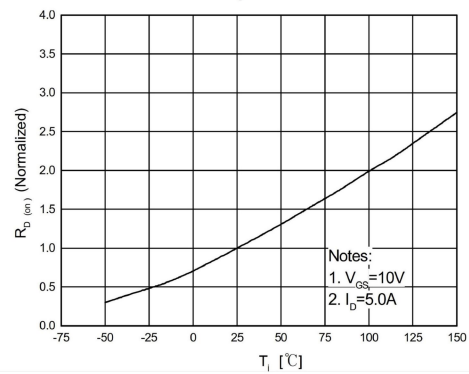
Gate Charge Characteristics



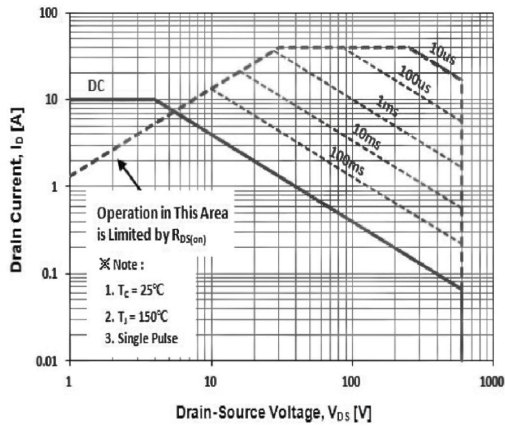
Breakdown Voltage Variation vs. Temperature



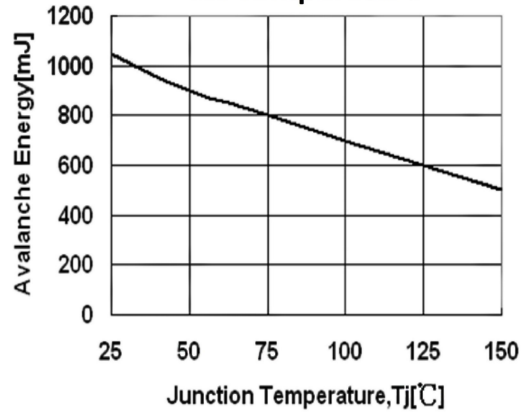
On-Resistance Variation vs. Temperature



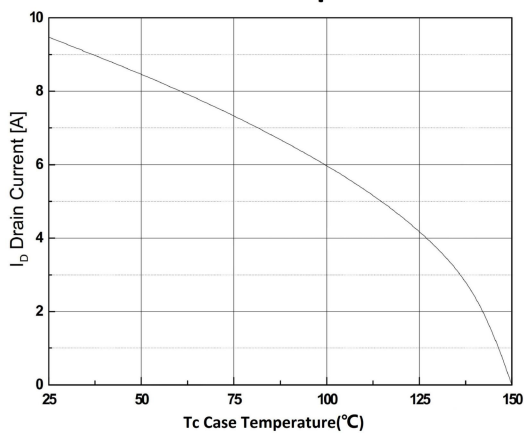
Maximum Safe Operating Area



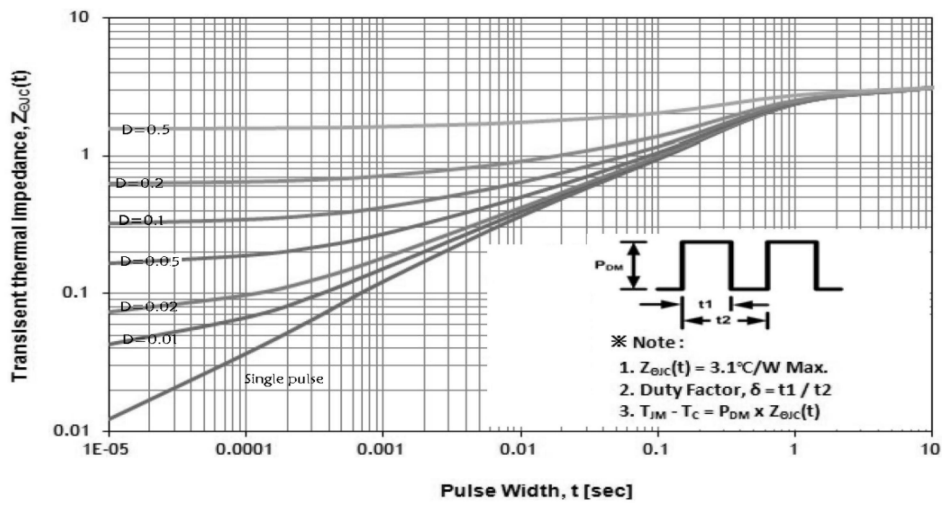
Avalanche Energy vs. Temperature



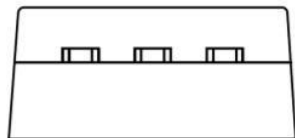
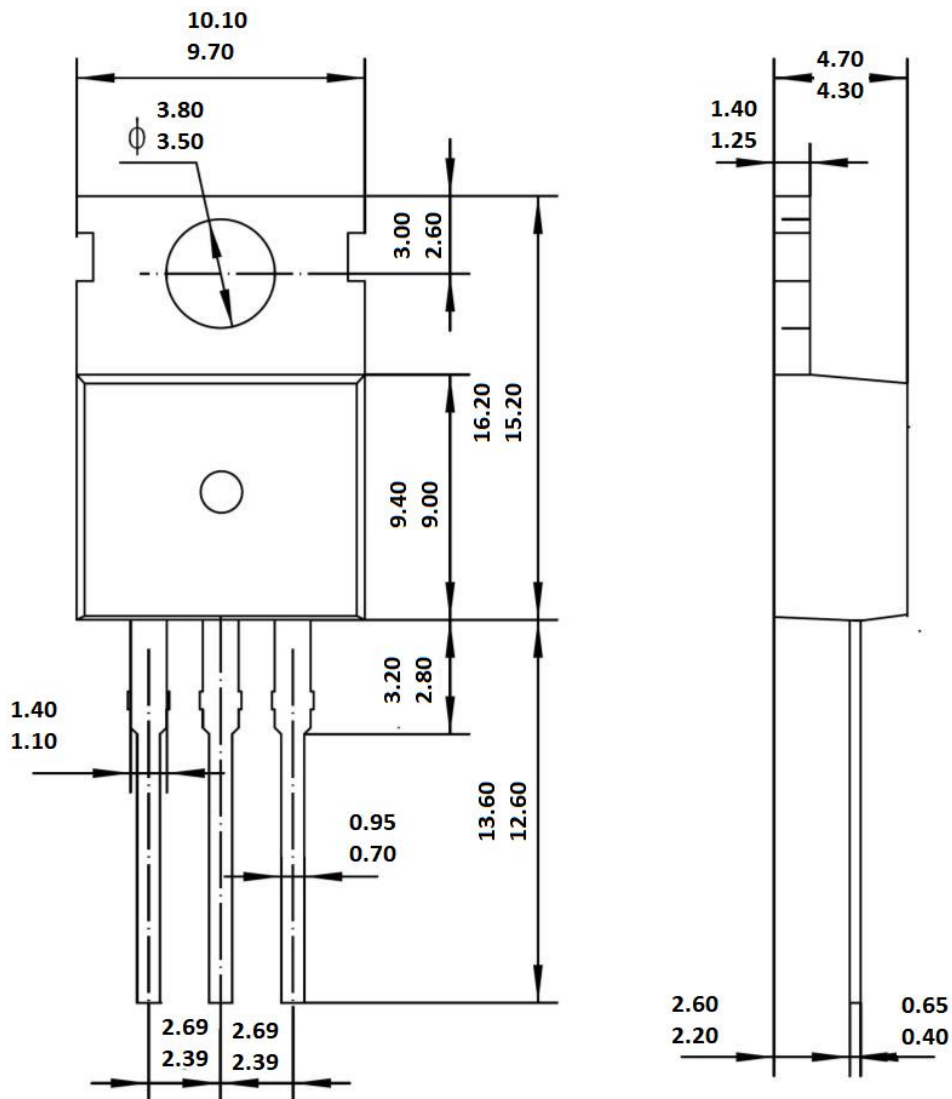
Maximum Drain Current vs. Case Temperature



Transient Thermal Response Curve



PACKAGE MECHANICAL DATA



TO-220

Unit: mm

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [MASPOWER](#) manufacturer:

Other Similar products are found below :

[IRFD120](#) [IRFY240C](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)
[IPS70R2K0CEAKMA1](#) [SQD23N06-31L-GE3](#) [TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [EFC2J004NUZTDG](#)
[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](#) [NVMFS2D3P04M8LT1G](#) [BXP7N65D](#) [BXP4N65F](#) [AOL1454G](#) [WMJ80N60C4](#) [BXP2N20L](#)
[BXP2N65D](#) [BXT1150N10J](#) [BXT1700P06M](#) [TSM60NB380CP](#) [ROG](#) [RQ7L055BGTCR](#) [DMNH15H110SK3-13](#)