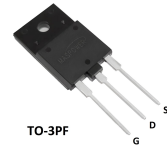
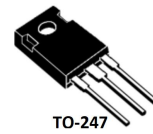
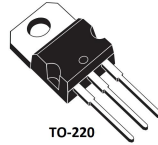
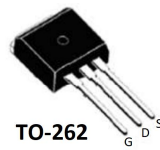
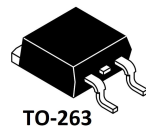


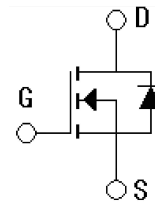
Features

- Low gate charge
- Low C_{RSS} (typ. 9pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product



Applications

- High frequency switching mode power supply
- Electronic ballast
- UPS



Absolute Ratings (Tc=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Drain Current-continuous	I_D T=25°C T=100°C	8	A
		5	A
Drain Current-pulse (note 1)	I_{DM}	24*	A
Gate-Source Voltage	V_{GS}	±30	V
Single pulse avalanche energy(note 2)	E_{AS}	650	mJ
Avalanche Current (note 1)	I_{AR}	8	A
Repetitive Avalanche Energy(note 1)	E_{AR}	16.7	mJ
Power Dissipation (TO-220\TO-247)	PD TC=25°C Derate above 25°C	167	W
		1.43	W/°C
Power Dissipation (TO-263\TO-262)	PD TC=25°C Derate above 25°C	83	W
		0.34	W/°C
Power Dissipation (TO-220F\TO-3PF)	PD TC=25°C Derate above 25°C	31.7	W
		0.25	W/°C
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Peak Diode Recovery dv/dt (note 3)	dv/dt	4.5	V/ns
Maximum Lead Temperature for Soldering Purposes	T _L	300	°C

*Drain current limited by maximum junction temperature

Electrical Characteristics(T_{CASE}=25°C unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Drain-Source Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	1000	-	-	V
Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	I _D =250μA, referenced to 25°C	-	1.05	-	V/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =1000V, V _{GS} =0V, T _C =25°C	-	-	1	μA
		V _{DS} =800V, T _C =125°C	-	-	10	μA
Gate body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V	-	-	±100	nA
On-Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	-	4.0	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =1A	-	1.8	2.3	Ω
Forward Transconductance	g _{FS}	V _{DS} =40V, I _D =4A (note 4)	-	5.6	-	S
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	1320	-	pF
Output capacitance	C _{oss}		-	105	-	pF
Reverse transfer capacitance	C _{rss}		-	9	-	pF

Electrical Characteristics(T_{CASE}=25°C unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DD} =450V, I _D =6A, R _{GEN} =25Ω (note 4,5)	-	34	-	ns
Turn-On rise time	t _r		-	85	-	ns
Turn-Off delay time	t _{d(off)}		-	56	-	ns

Turn-Off rise time	t _f		-	59	-	ns
Total Gate Charge	Q _g	V _{DS} =720V,I _D =6A, V _{GS} =10V (note 4,5)	-	14	-	nC
Gate-Source charge	Q _{gs}		-	5	-	nC
Gate-Drain charge	Q _{gd}		-	6	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage (note 3)	V _{SD}	V _{GS} =0V,I _S =1A	-	0.73	1.4	V
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}	-	-	-	24	A
Maximum Continuous Drain Source Diode Forward Current	I _S	-	-	-	8	A
Reverse recovery time	t _{rr}	V _{GS} =0V, I _S =6A dI _F /dt=100A/μs	-	625	-	ns
Reverse recovery charge	Q _{rr}	Tc=25°C (note 4)	-	6.71	-	μC

Thermal Characteristic

Parameter	Symbol	Value			Unit
		TO-220/ TO-247/TO-263	TO-262	TO-220F/ TO-3PF	
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.78	1.5	3.94	$^\circ C/W$
Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5	65	80	$^\circ C/W$

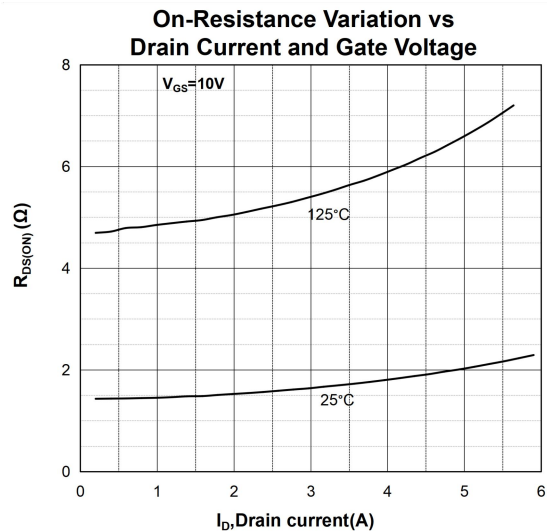
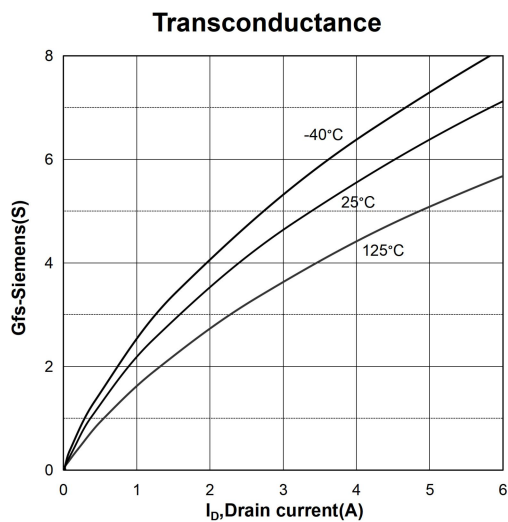
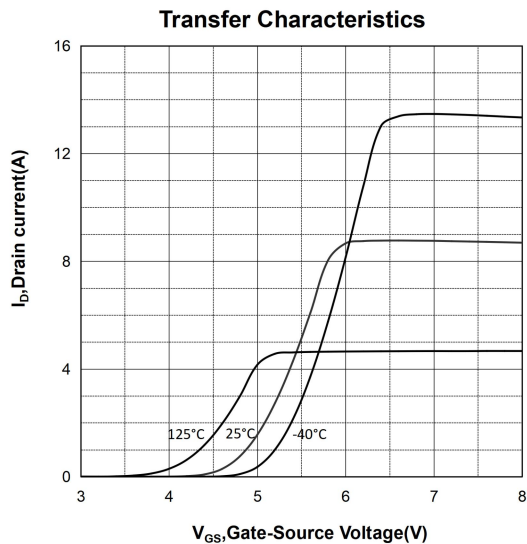
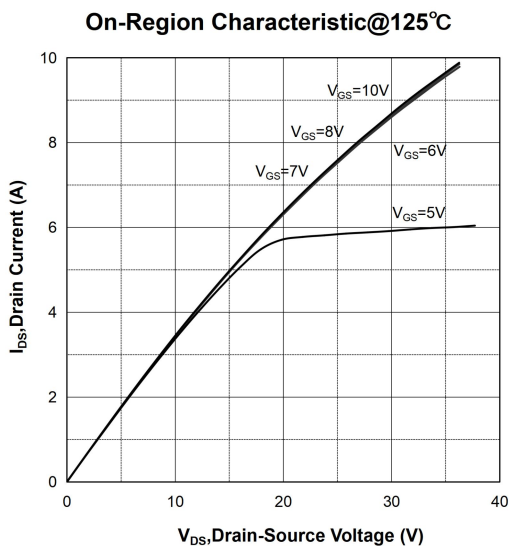
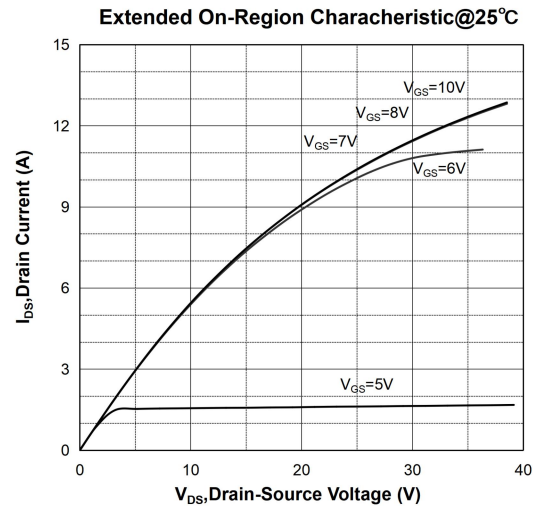
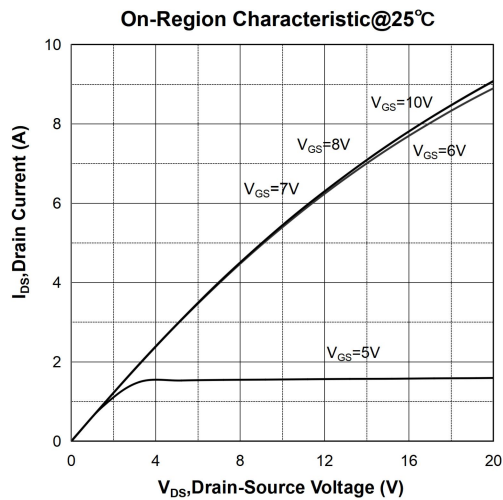
Order Message

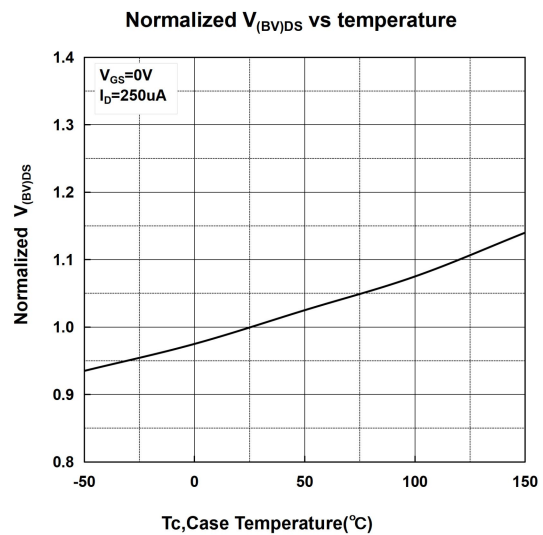
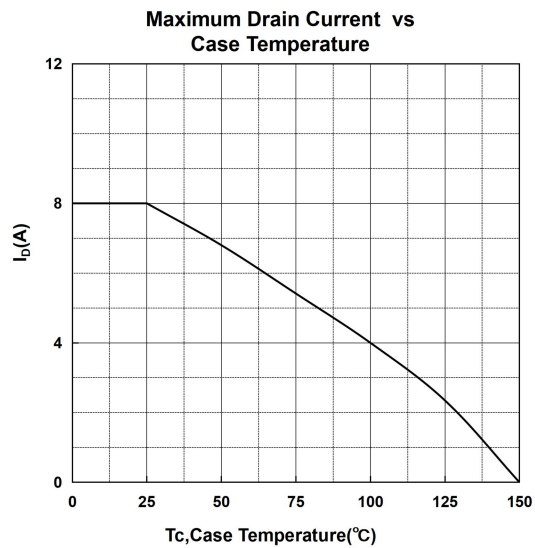
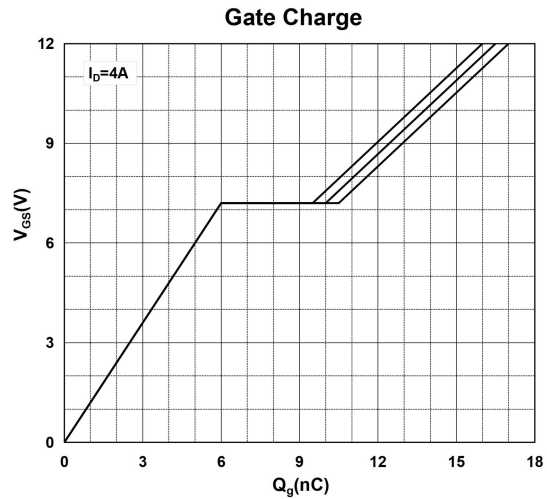
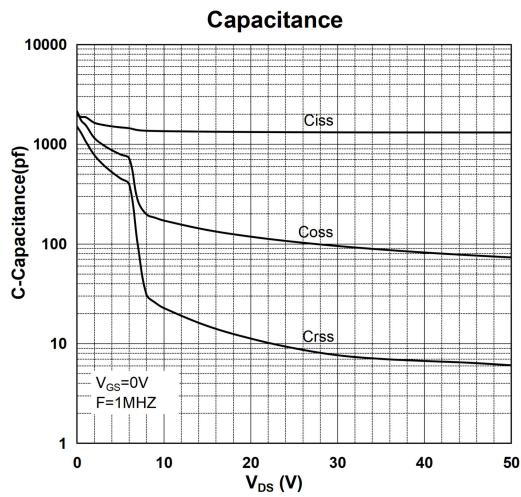
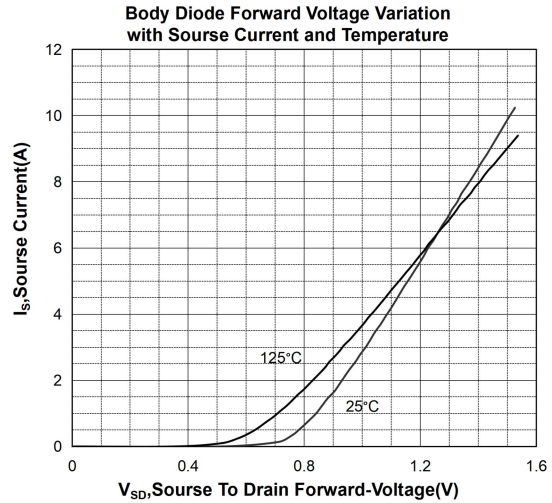
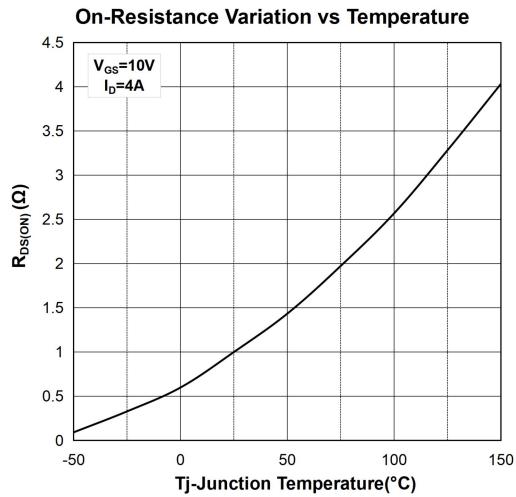
Marking	Package
MS8N100FE	TO-263
MS8N100FK	TO-262
MS8N100FS	TO-220F
MS8N100FT	TO-220
MS8N100FC	TO-247
MS8N100FB2	TO-3PF

Notes:

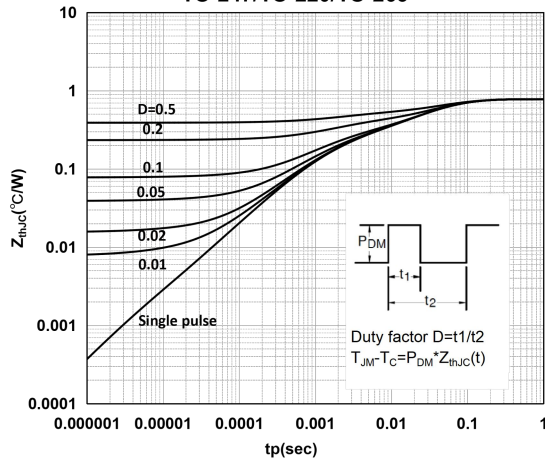
1. Pulse width limited by maximum junction temperature
2. $L=2.0mH, I_{AS}=8A, V_{DD}=50V, R_G=25 \Omega$, Starting $T_J=25^\circ C$
3. $I_{SD} \leq 8A, di/dt \leq 200A/\mu s, V_{DD} \leq BV_{DSS}$, Starting $T_J=25^\circ C$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
5. Essentially independent of operating temperature

ELECTRICAL CHARACTERISTICS (curves)

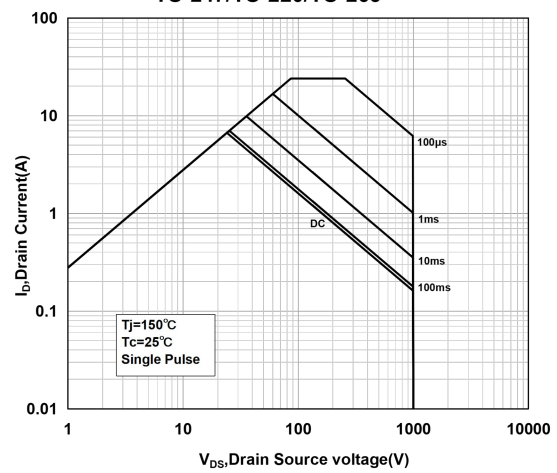




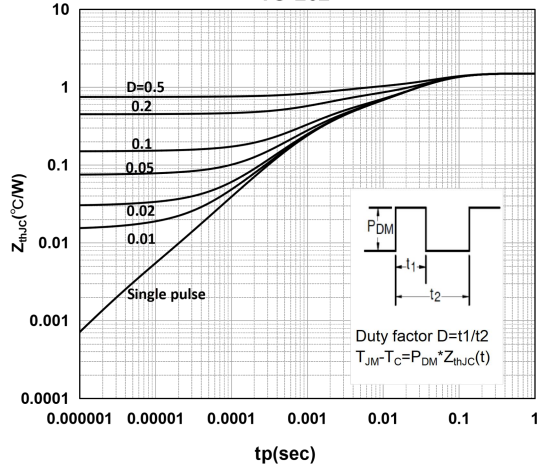
**Transient Thermal Response Curve for
TO-247/TO-220/TO-263**



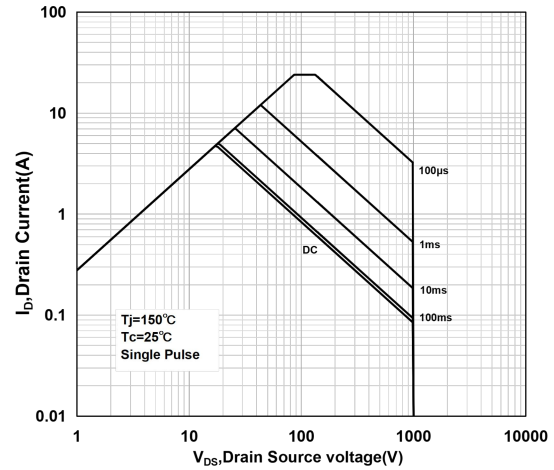
**Safe Operating Area for
TO-247/TO-220/TO-263**



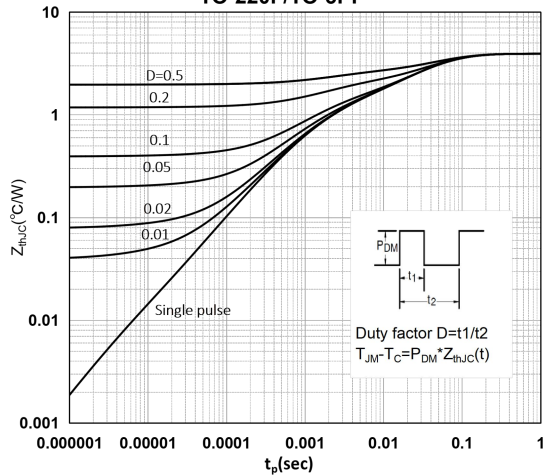
**Transient Thermal Response Curve for
TO-262**



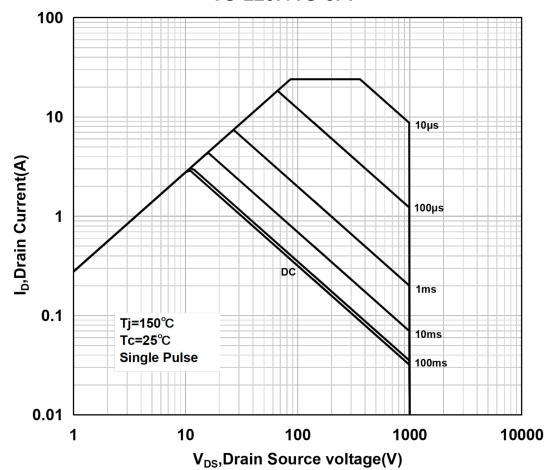
**Safe Operating Area for
TO-262**



**Transient Thermal Response Curve for
TO-220F/TO-3PF**



**Safe Operating Area for
TO-220F/TO-3PF**



PACKAGE MECHANICAL DATA

