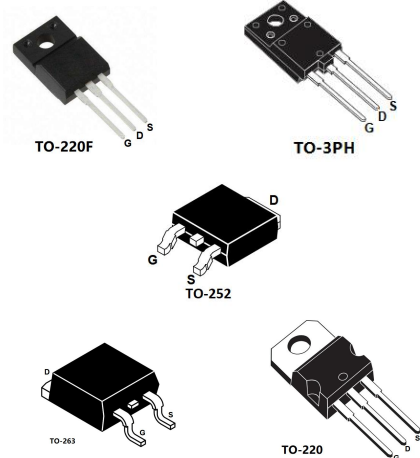
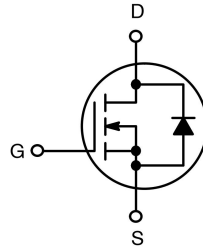


Features

- Extremely high dv/dt capability
- 100% avalanche tested
- Gate charge minimized
- Very low intrinsic capacitances
- Very good manufacturing repeatability



Applications

- Switching application

Electrical ratings(Absolute maximum ratings)

Parameter	Symbol	Value				Unit
		TO-3PH	TO-220F	TO-220/ TO-252	TO-263	
Drain-source voltage ($V_{GS}=0$)	V_{DS}	1000				V
Gate-source voltage	V_{GS}	±30				
Avalanche current repetitive or not-repetitive (pulse width limited by T_j Max)	IAR	5				A
Single pulse avalanche energy (starting $T_j=25^\circ\text{C}$ $I_d=I_{AR}$ $V_{dd}=50\text{V}$)	EAS	583				mJ
Drain current (continuous) at $TC=25^\circ\text{C}$	I_D	5				A
Drain current (continuous) at $TC=100^\circ\text{C}$	I_D	3				
Drain current (pulsed)	I_{DM}	18	18	18	18	
Total dissipation at $TC=25^\circ\text{C}$	PD	48	74	60	80	W
Operating junction temperature	T_J	-55 to 175				°C
Storage temperature	T_{STG}					
Maximum lead temperature for soldering purpose	TL	300				°C

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
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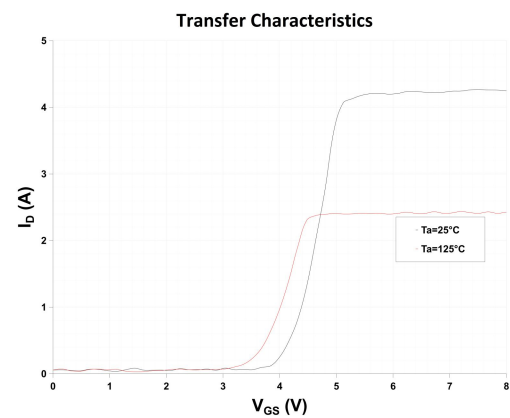
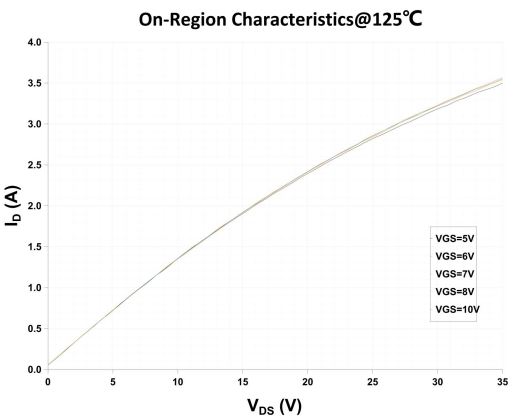
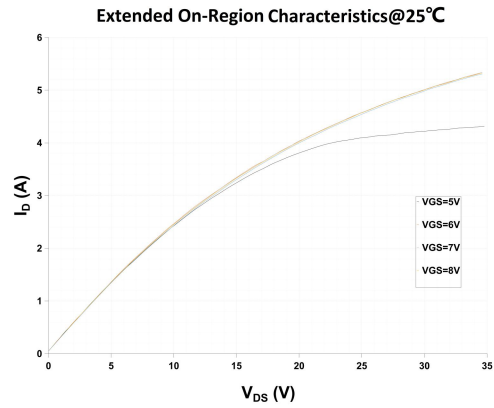
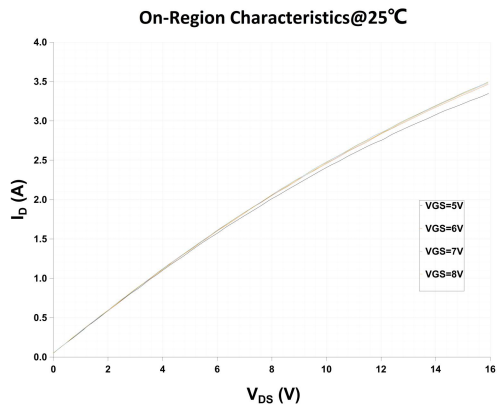
On/off states						
Drain-source breakdown voltage	V(BR)DSS	ID=1mA VGS=0	1000			V
Zero gate voltage drain current (VGS=0)	IDSS	VDS=Max rating			1	μA
		TC=125°C			50	μA
Gate body leakage current (VGS=0)	IGSS	VGS=±20V			±100	nA
Gate threshold voltage	VGS(th)	VDS=VGS ID=100μA	3	3.5	4.5	V
Static drain-source on resistance	RDS(on)	VGS=10V ID=1A		3.5	4.2	Ω
Forward transconductance	gfs	VDS = 27 V, ID = 5A		5.6		S
Dynamic						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Input capacitance	Ciss	VDS=25V, f=1MHz, VGS=0		506		pF
Output capacitance	Coss			59		
Reverse transfer capacitance	Crss			3		
Total gate charge	Qg	VDD=800V, ID=2.5A VGS=10V, RG = 4.7 Ω		18.6		nC
Gate-source charge	Qgs			2.1		
Gate-drain charge	Qgd			7.3		
Switching times						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Turn-on delay time	td(on)	VDD = 800 V, ID = 2.5 A, RG = 25Ω, VGS = 10 V		35.6		ns
Rise time	tr			22.9		
Turn-off-delay time	td(off)			42.7		
Fall time	tf			13.6		
Source Drain Diode						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Source Drain Current	ISD			5		A
Source Drain Current(Pulsed)	ISDM			18		A
Forward On Voltage	VSD	ISD=5A, VGS=0V		0.8	1.2	V
Reverse Recovery Time	Trr	ISD=5A, di/dt=200A/μS		1.02		us

Reverse Recovery Charge	Q _{rr}	V _R =100V, T _j =150°C		3.68		uC
Thermal data						
Parameter	Symbol	Value				Unit
		TO-220F	TO-3PH	TO-220/ TO-252	TO-263	
Thermal resistance junction max	R _{thj-case}	1.69	2.6	4.2	0.63	°C/W
Thermal resistance junction-ambient max	R _{th-a-case}	47.4	58	68	35	°C/W

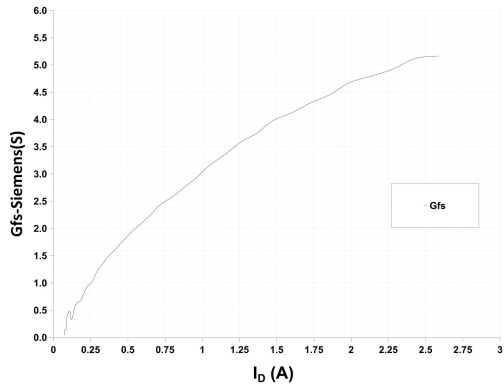
Order codes

Partnumber	Marking	Package
MS5N100	MS5N100	TO-3PH
MS5N100S	MS5N100S	TO-220F
MS5N100FT	MS5N100FT	TO-220
MS5N100FE	MS5N100FE	TO-263/D2PAK
MS5N100FD	MS5N100FD	TO-252/DPAK

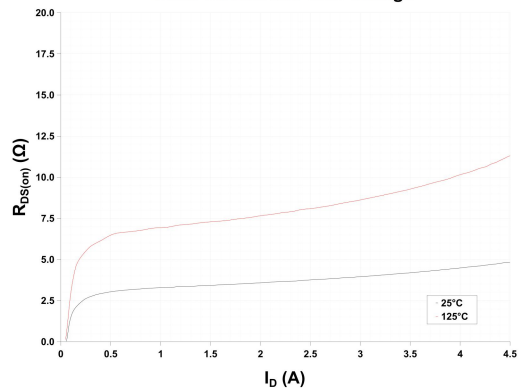
Electrical characteristics (curves)



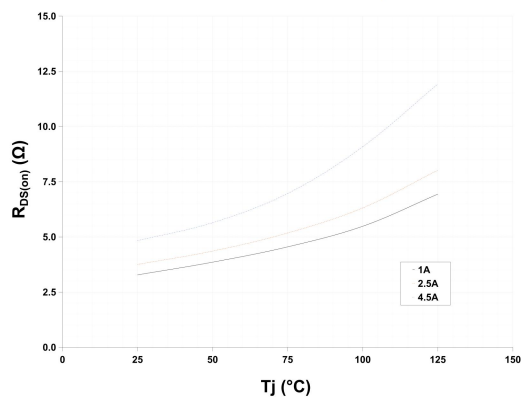
Transconductance



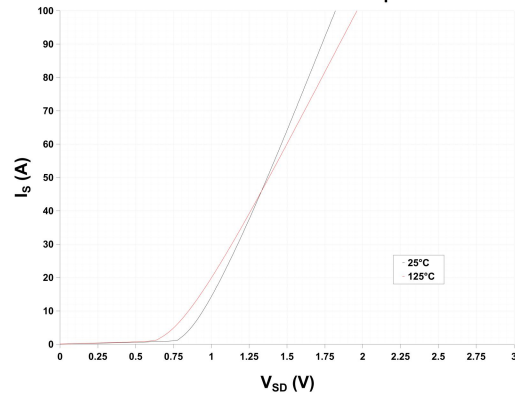
On-Resistance Variation vs Drain Current and Gate Voltage



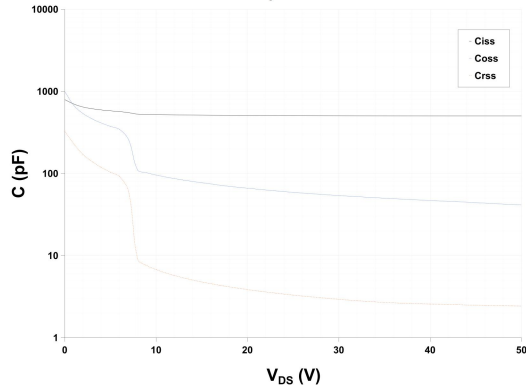
On-Resistance Variation vs Temperature



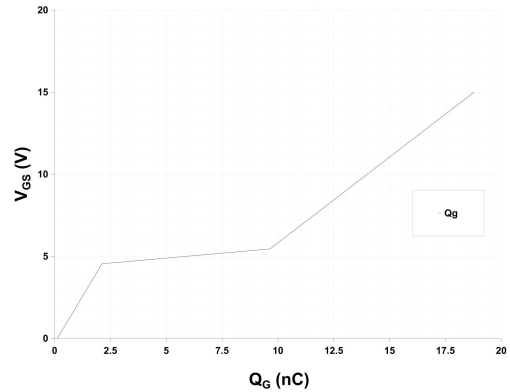
Body Diode Forward Voltage Variation with Source Current and Temperature



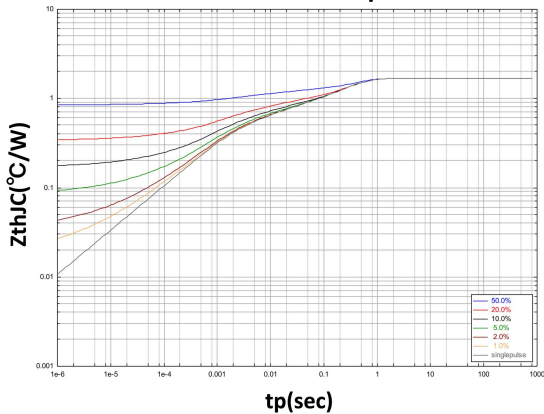
Capacitance



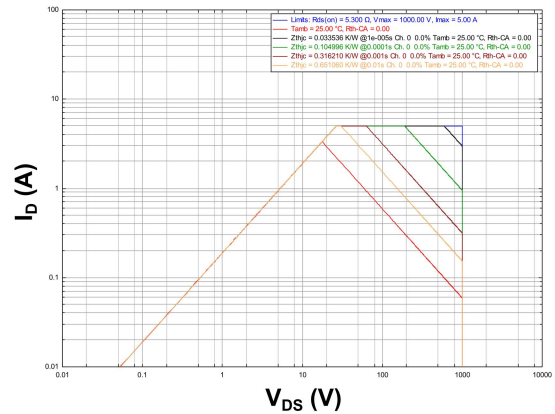
Gate Charge



Transient Thermal Response Curve

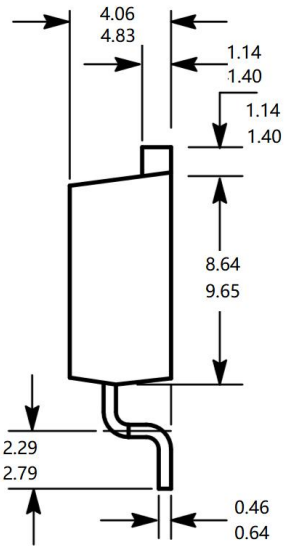
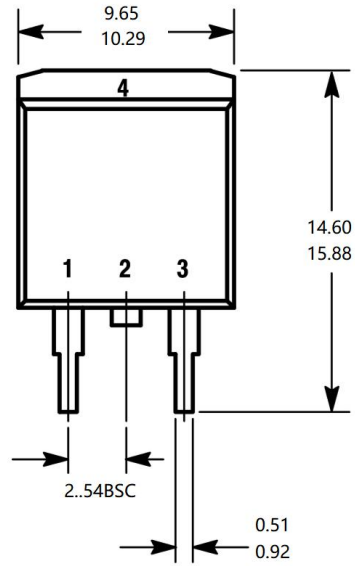


SOA

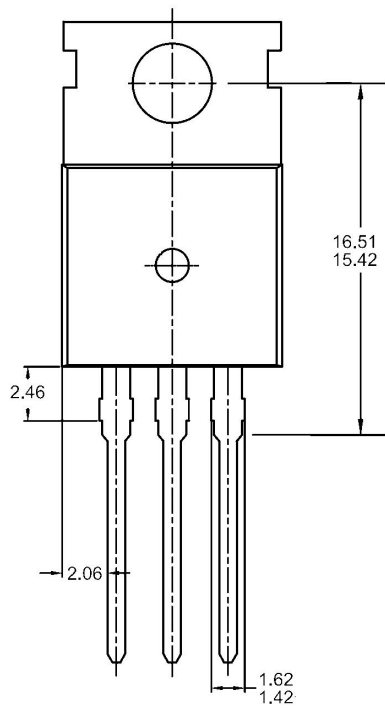


Package outline dimension

TO-263/D2PAK

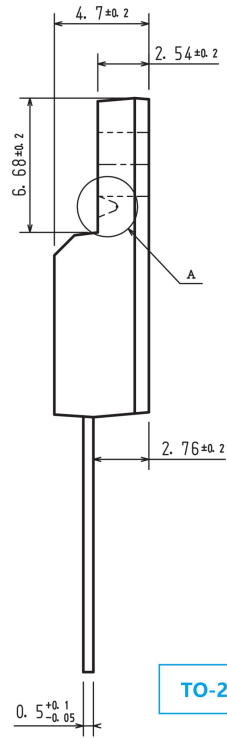
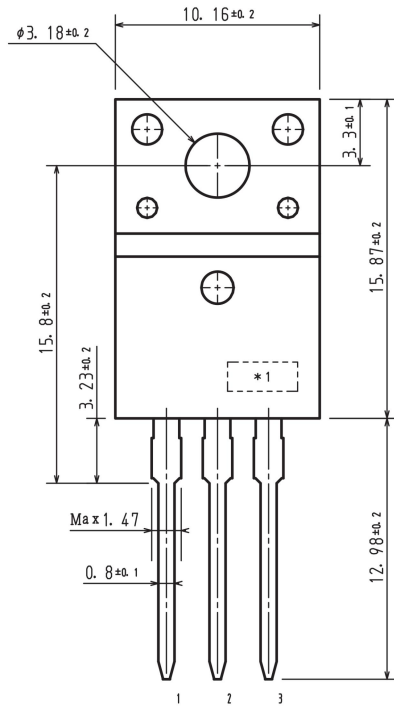


TO-263/D2PAK

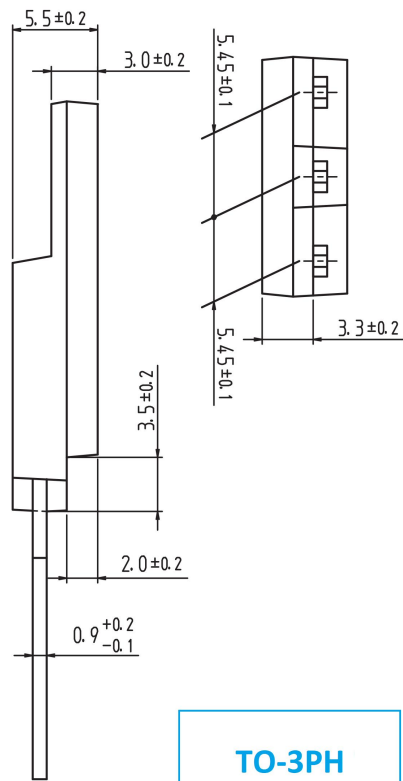
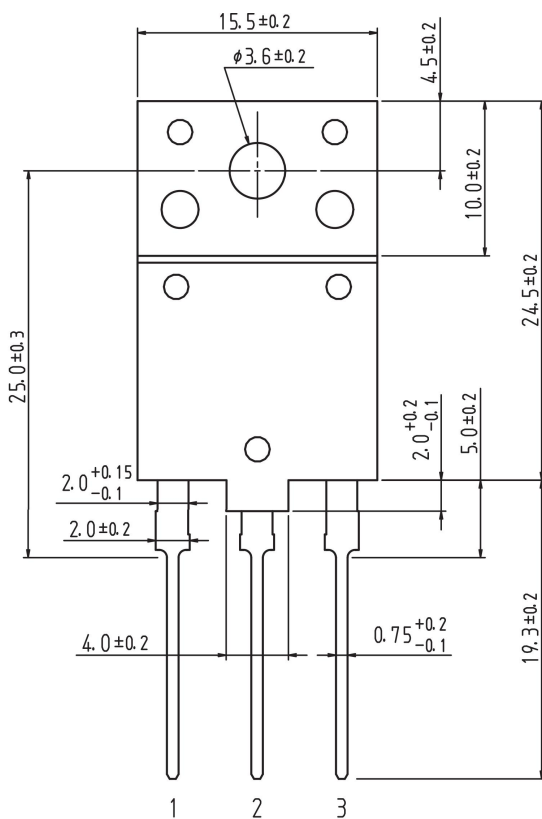


TO-220

TO-220



TO-220F



TO-3PH

