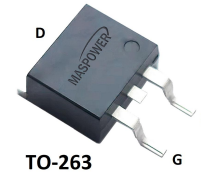


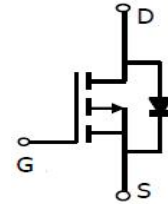
Features

- $V_{DS}=-100V, I_D=-80A$
 $R_{DS(on), Typ.}=15.8m\Omega @ V_{GS}=-10V$
- Fast Switching
- Low Gate Charge and R_{dson}
- Low Reverse Transfer Capacitances
- 100% Single Pulse Avalanche Energy Test



Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



Absolute Ratings ($T_C=25^\circ C$)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	-100	V
Transient Gate-Source Voltage	V_{GSM}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	-80	A
Drain Current-continuous ($T_C=100^\circ C$)	$I_D(T_C=100^\circ C)$	-67	A
Drain Current-pulse ¹	I_{DM}	-200	A
Continuous pulse avalanche current	I_{AR}	-29	A
Single Pulsed Avalanche Energy ²	E_{AS}	870	mJ
Maximum Power Dissipation ³	$P_D, T_C=25^\circ C$	56	W
Operating and Storage Temperature Range ⁴	T_J, T_{STG}	-55~+150	$^\circ C$
Maximum Lead Temperature for Soldering Purpose	T_L	260	$^\circ C$

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Unit
Drain-Source Voltage	BV_{DSS}	$I_D=-250\mu A, V_{GS}=0V$	-100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-100V, V_{GS}=0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA

On-Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA	-1.0	-1.8	-2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V,I _D =-20A	-	15.8	20	mΩ
		V _{GS} =-4.5V,I _D =-10A	-	17.8	23	mΩ
Dynamic Characteristics						
Transconductance	G _{fs}	V _{DS} =-50V,I _D =-20A	-	56	-	S
Input capacitance	C _{iss}	V _{DS} =-50V,V _{GS} =0V, f=1.0MHz	-	12186	-	pF
Output capacitance	C _{oss}		-	374	-	pF
Reverse transfer capacitance	C _{rss}		-	344	-	pF
Gate Resistance	R _g	f=1MHz	-	2.0	-	Ω

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DS} =-50V, I _D =-1A, R _G =3.3Ω V _{GS} =-10V , (note 4,5)	-	30	-	ns
Turn-On rise time	t _r		-	23	-	ns
Turn-Off delay time	t _{d(Off)}		-	75	-	ns
Turn-Off rise time	t _f		-	27	-	ns
Total Gate Charge	Q _g	V _{DS} =-50V, I _D =-20A, V _{GS} =-10V (note 4,5)	-	82	-	nC
Gate-Source charge	Q _{gs}		-	10.7	-	nC
Gate-Drain charge	Q _{gd}		-	13.2	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Body Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-10A	-	-	-1.2	V
Continuous Source Current	I _S		-	-	-80	A
Maximum Diode Forward Current	I _{SM}		-	-	-320	A
Reverse recovery time	t _{rr}	V _{GS} =0V, I _S =-20A	-	50	-	ns

Reverse recovery charge	Q_{rr}	$V_{SD}=-20V$ $-dI_F/dt=500A/\mu s$ (note 4)	-	146	-	nC
Reverse recovery Current	I_{RM}		-	-12.5	-	A

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance,junction to Case ⁵	$R_{th(J-C)}$	2.2	°C/W
Thermal Resistance,junction to Ambient	$R_{th(J-A)}$	60	°C/W

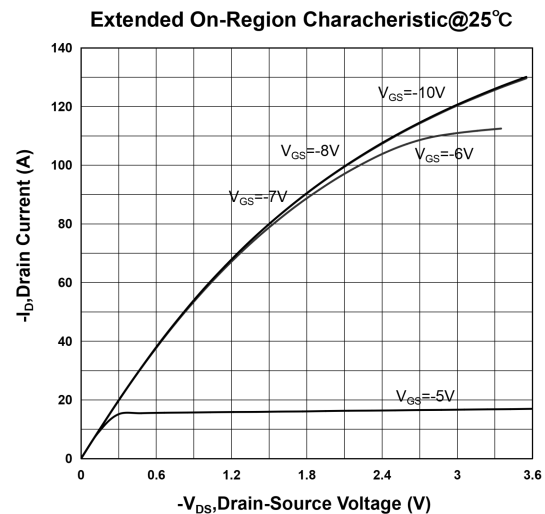
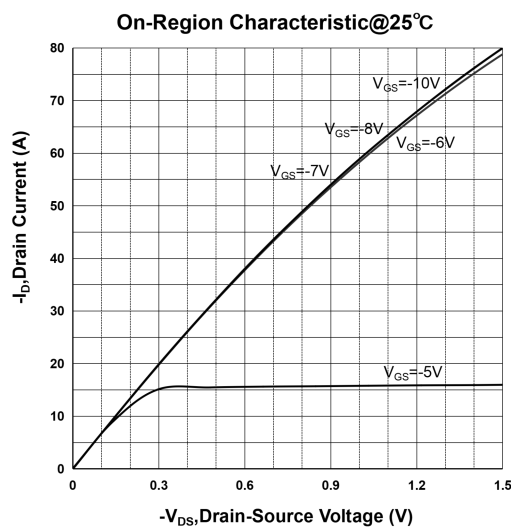
Notes:

1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
2. E_{AS} condition: $T_J=25^\circ C$, $V_{DS}=-30V$, $V_{GS}=-10V$, $L=0.5mH$, $I_{AS}=59A$, $R_g=25\Omega$
3. Repetitive Rating: Pulse width limited by maximum junction temperature.
4. Guaranteed by design, not subject to production
5. Surface Mounted on FR4 Board, $t \leq 10$ sec.

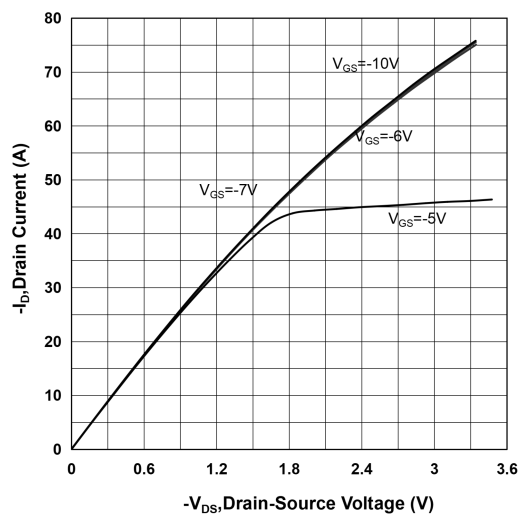
Order information

Order codes	Package	Packaging
MS80P10IDE3	TO-263(中间有脚)	Tube

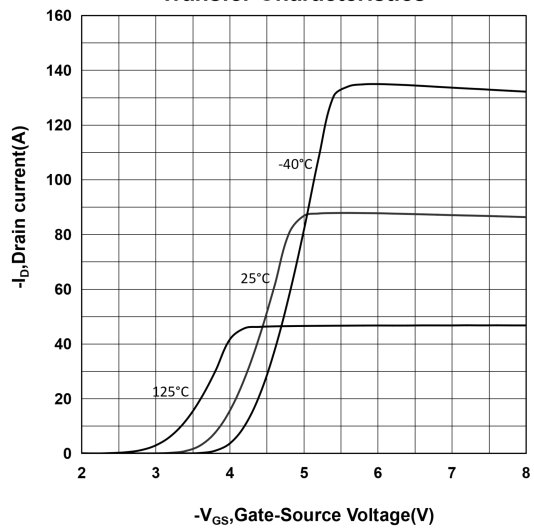
Typical characteristic curves



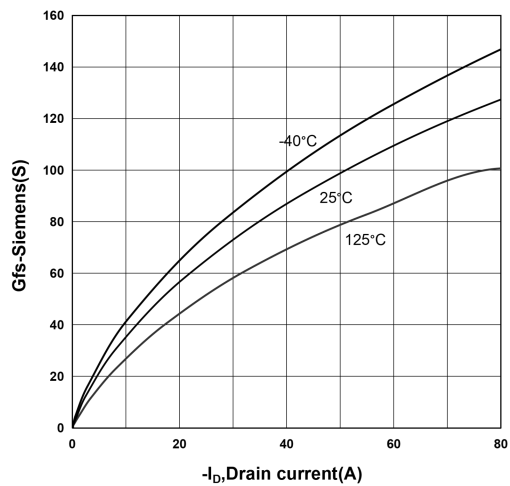
On-Region Characteristic@125°C



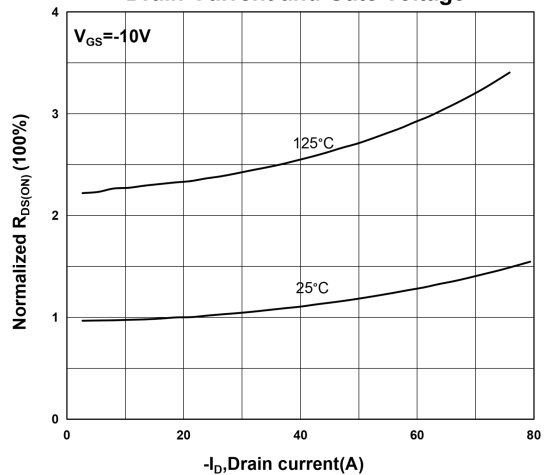
Transfer Characteristics



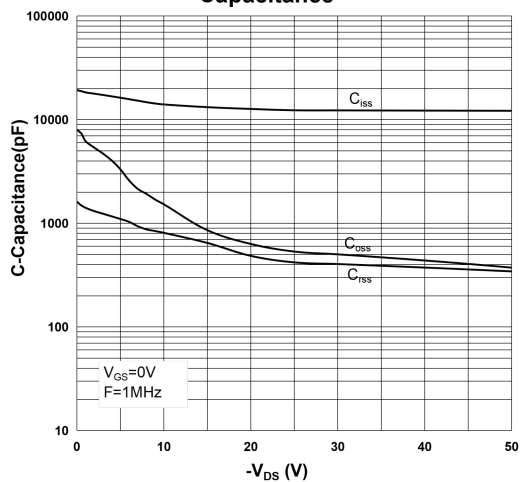
Transconductance



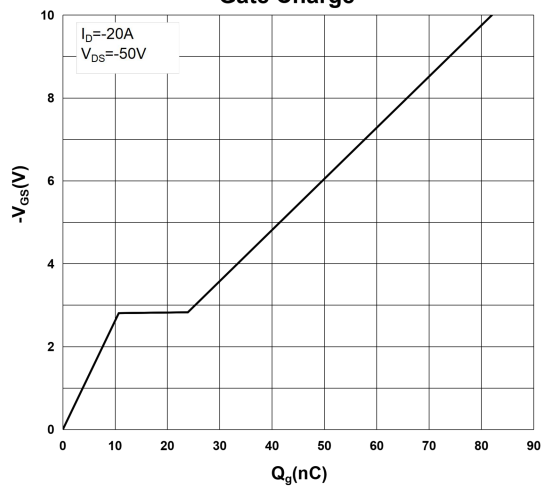
Normalized On-Resistance Variation vs Drain Current and Gate Voltage

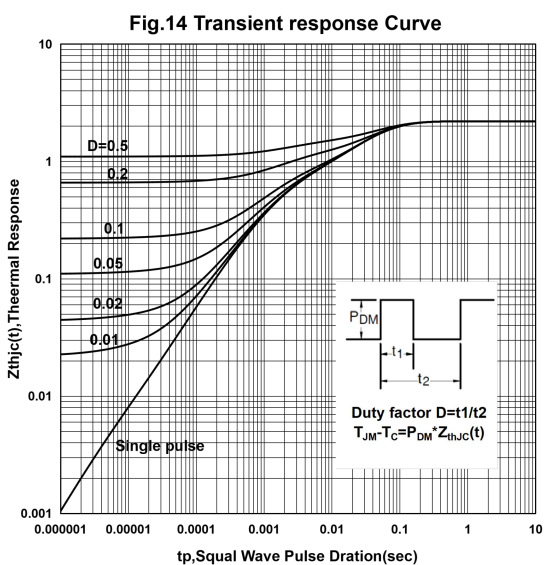
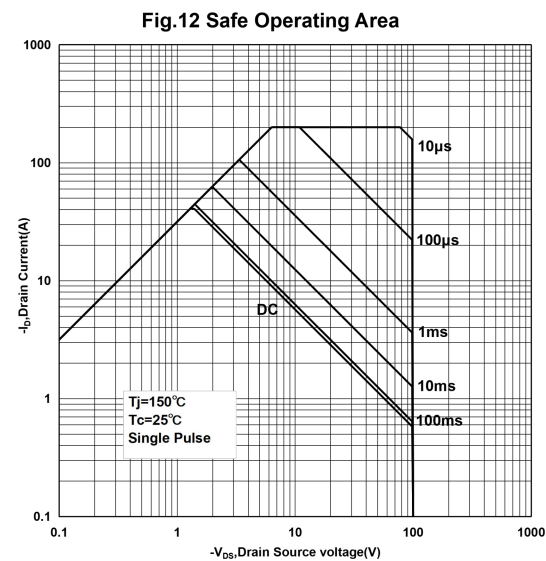
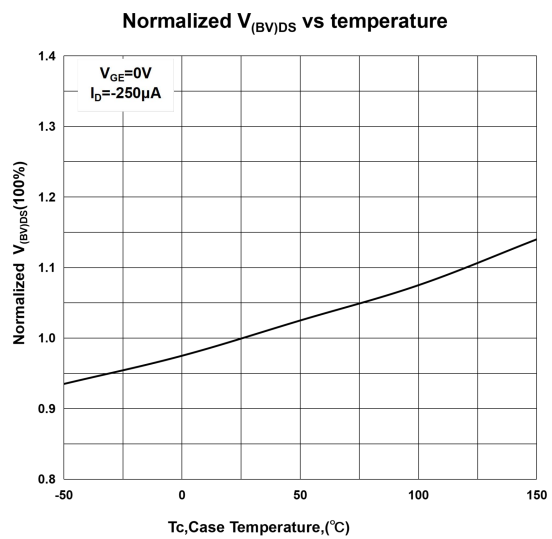
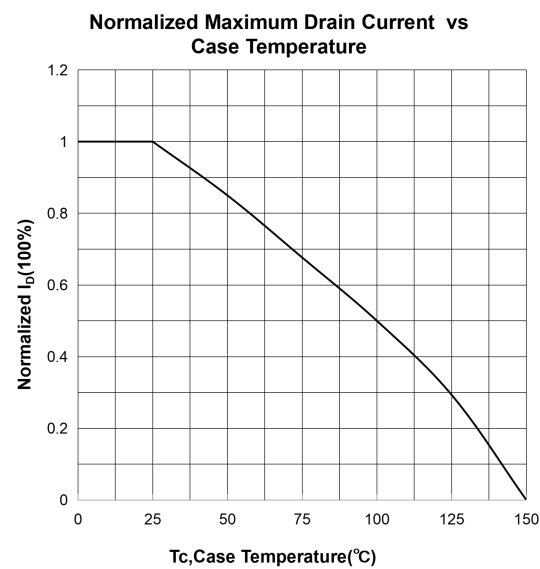
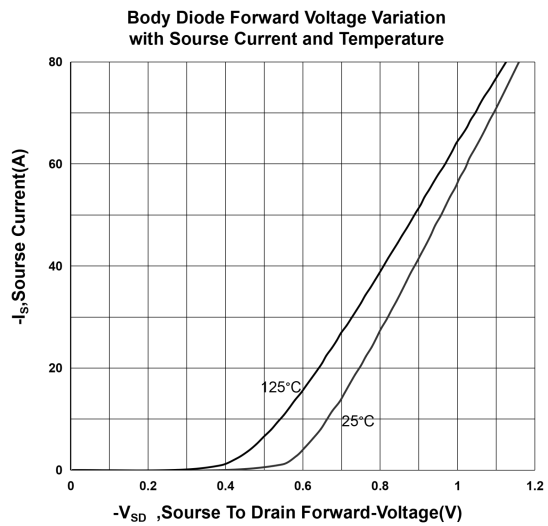
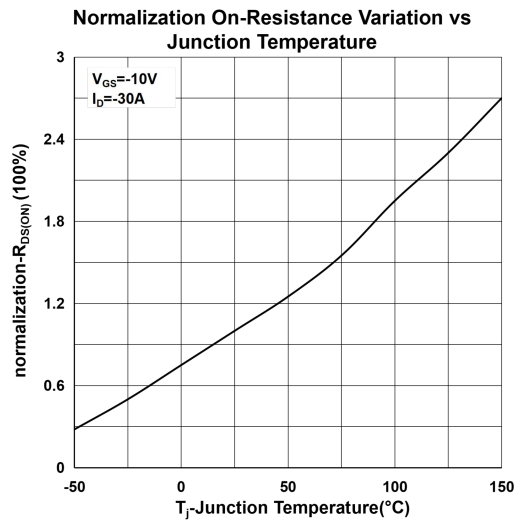


Capacitance

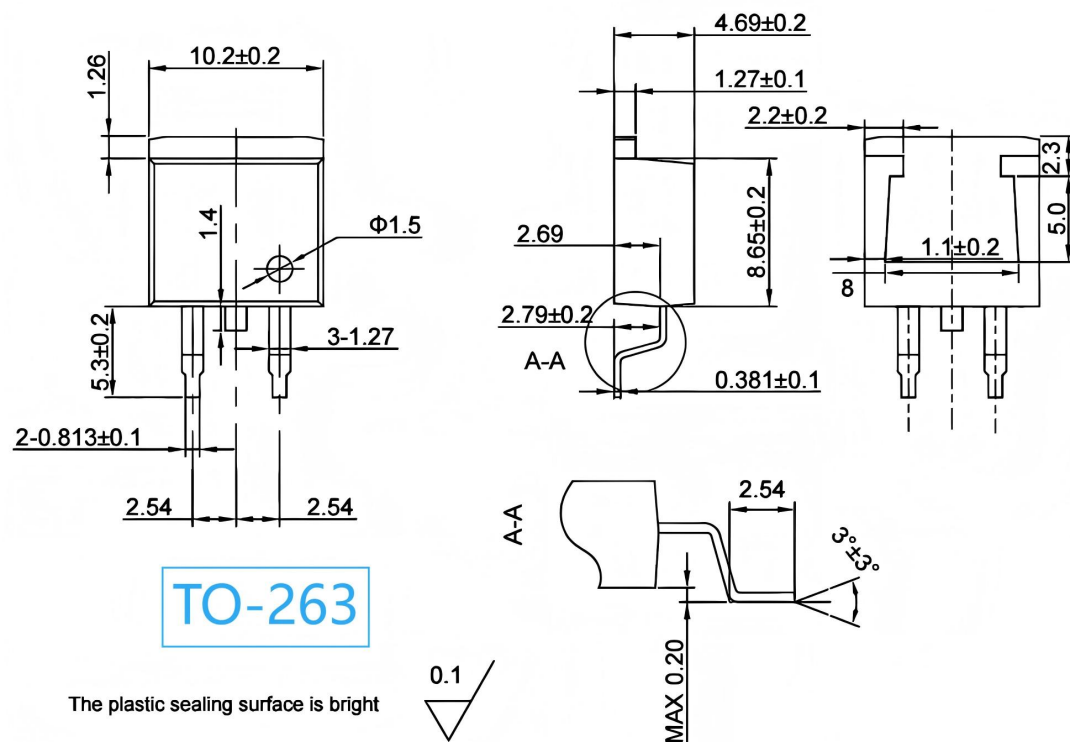


Gate Charge





Package Mechanical DATA



Notes:

1. Unmarked tolerance $\pm 0.15\text{mm}$; unmarked R $< 0.15\text{mm}$
2. The resin body is not allowed to have defects, shrinkage holes, cracks, bubbles and other harmful defects
3. The drawing indicates that the leg has reinforcement
4. Unit : mm