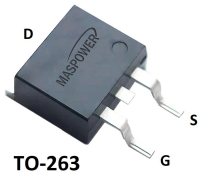
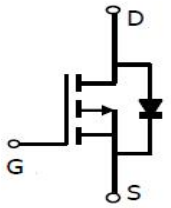
Features

- V_{DS}=-60V,I_D=-100A
  $R_{DS(on),Typ.}$=7.5mΩ @ V_{GS}=-10V
- Fast Switching
- Low Gate Charge and Rdson
- 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 (Tc=25℃)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	-60	V
Transient Gate-Source Voltage	V_{GSM}	±30	V
Continuous Gate-Source Voltage	V_{GSS}	±20	V
Drain Current-continuous	I_D	-100	A
Drain Current-continuous (T_C=100℃)	I_D(T_C=100℃)	-80	A
Drain Current-pulse[1]	I_{DM}	-400	A
Continuous pulse avalanche current	I_{AR}	-29	A
Single Pulsed Avalanche Energy[2]	E_{AS}	320	mJ
Maximum Power Dissipation[3]	P_D,T_C=25℃	125	W
Operating and Storage Temperature Range[4]	T_J,T_{STG}	-55~+150	℃
Maximum Lead Temperature for Soldering Purpose	T_L	260	℃

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	I_D=-250μA,V_{GS}=0V	-60	-	-	V
Zero Gate Voltage Drain	I_{DSS}	V_{DS}=-60V,V_{GS}=0V	-	-	-2	μA

Current		V_{DS}=-48V,V_{GE}=0V	-	-	-100	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.0	-2.0	-3.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-50A	-	7.5	9.2	mΩ
		V_{GS}=-4.5V,I_D=-10A	-	9.2	12	mΩ
Transconductance	G_{fs}	V_{DS}=-20V,I_D=-50A	-	96	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=-30V,V_{GS}=0V, f=1.0MHz	-	8540	-	pF
Output capacitance	C_{oss}		-	480	-	pF
Reverse transfer capacitance	C_{rss}		-	288	-	pF

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	V_{DS}=-30V,I_D=-1A, R_G=6Ω V_{GS}=-10V ,RL=1.5Ω (note 4,5)	-	14	-	ns
Turn-On rise time	t_r		-	9.3	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	94	-	ns
Turn-Off rise time	t_f		-	19	-	ns
Total Gate Charge	Q_g	V_{DS}=-30V,I_D=-10A, V_{GS}=-10V (note 4,5)	-	141	-	nC
Gate-Source charge	Q_{gs}		-	17	-	nC
Gate-Drain charge	Q_{gd}		-	28.3	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Body Diode Forward Current	V_{SD}	V_{GS}=0V,I_S=-20A	-	-0.8	-1.2	V
Continuous Source Current	I_S		-	-	-100	A
Maximum Diode Forward Current	I_{SM}		-	-	-400	A
Reverse recovery time	t_{rr}	V_{GS}=0V,I_S=-20A V_{SD}=-30V -dI_F/dt=100A/μs (note 4)	-	75	-	ns
Reverse recovery charge	Q_{rr}		-	146	-	nC
Reverse recovery Current	I_{RM}		-	-12.5	-	A

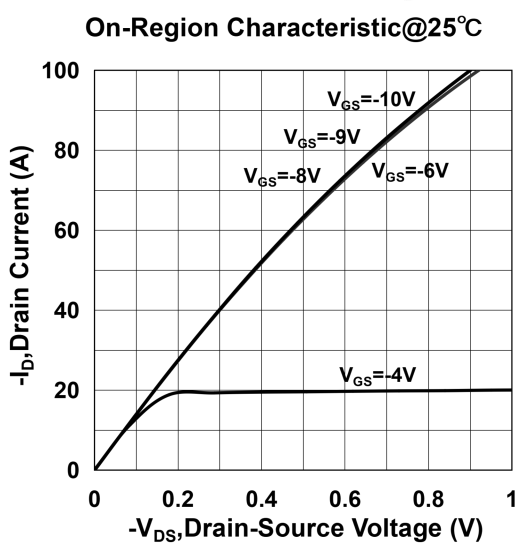
Thermal Characteristic

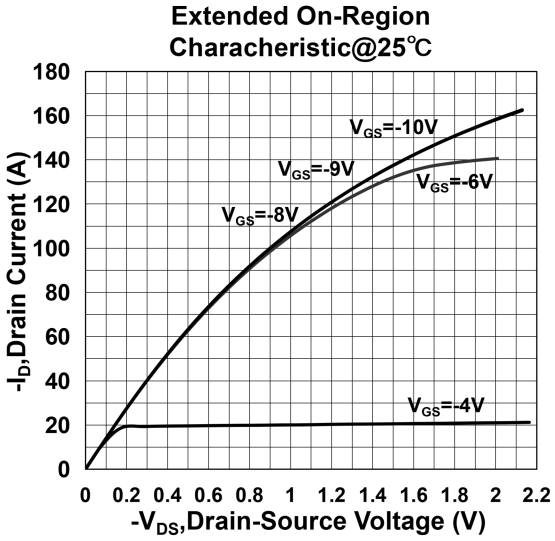
Parameter	Symbol	Value	Unit
Thermal Resistance,junction to Case[5] ,Max	$R_{th(J-C)}$	1.0	℃/W
Thermal Resistance,junction to Ambient,Max	$R_{th(J-A)}$	60	℃/W

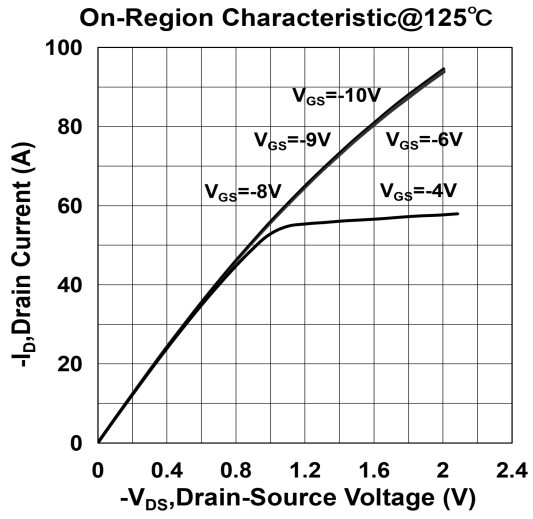
Notes:

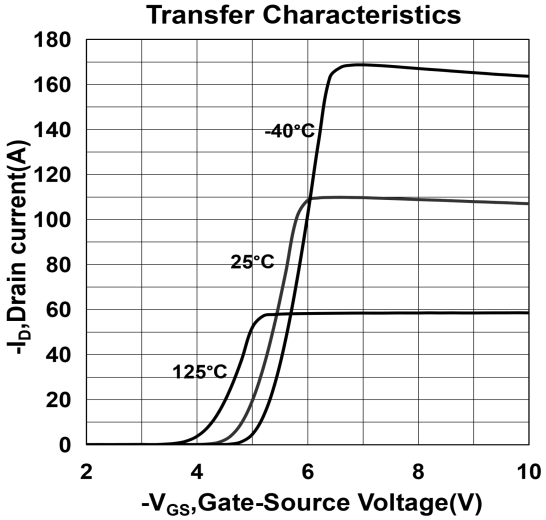
1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
2. E_{AS} condition：T_j=25℃,V_{DS}=-30V,V_{GS}=-10V,L=0.1mH,R_g=25Ω
3. Repetitive Rating: Pulse width limited by maximum junction temperature.
4. Guaranteed by design, not subject to production
5. Surface Mounted on FR4 Board, t ≤ 10 sec.

Typical characteristic curves

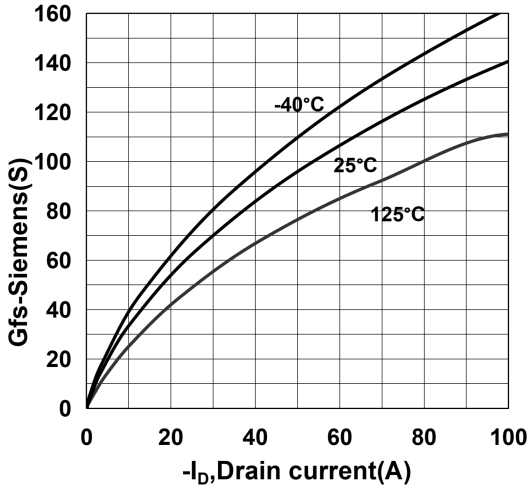




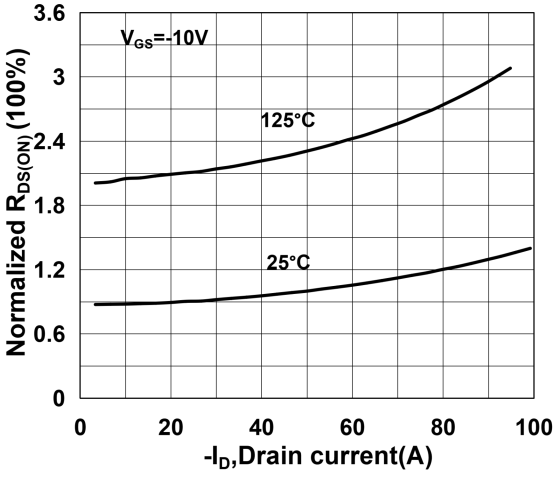




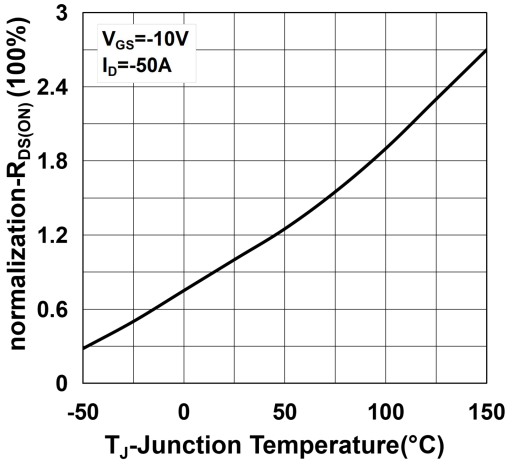
Transconductance



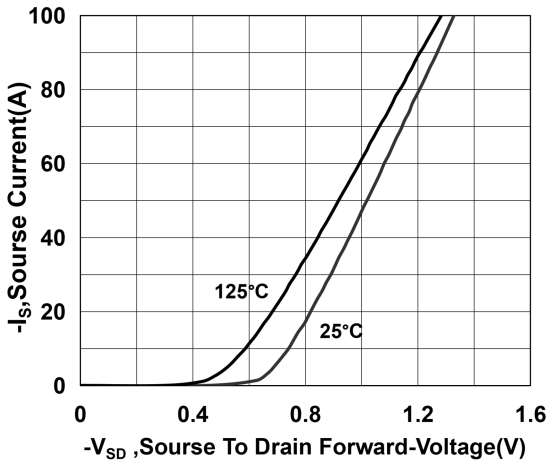
NormalizedOn-Resistance Variation vs Drain Current and Gate Voltage



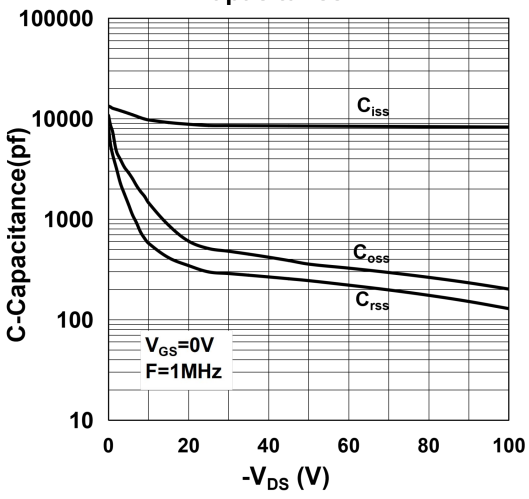
Normalization On-Resistance Variation vs Junction Temperature



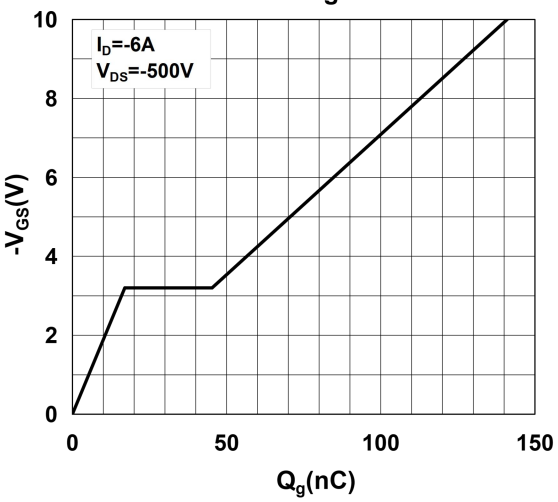
Body Diode Forward Voltage Variation with Sourse Current and Temperature



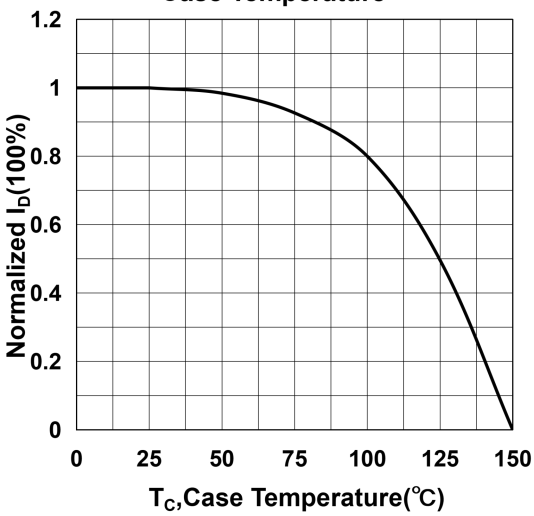
Capacitance



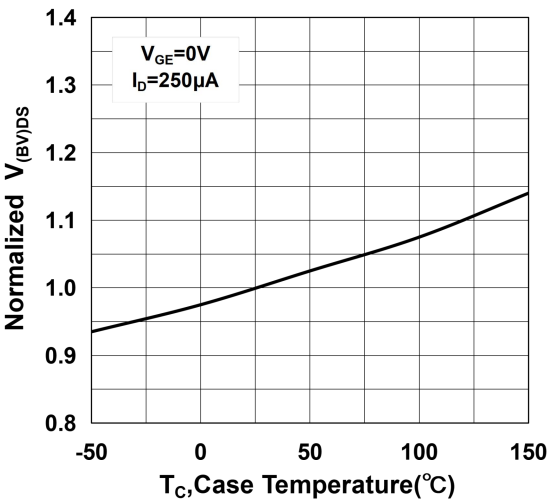
Gate Charge



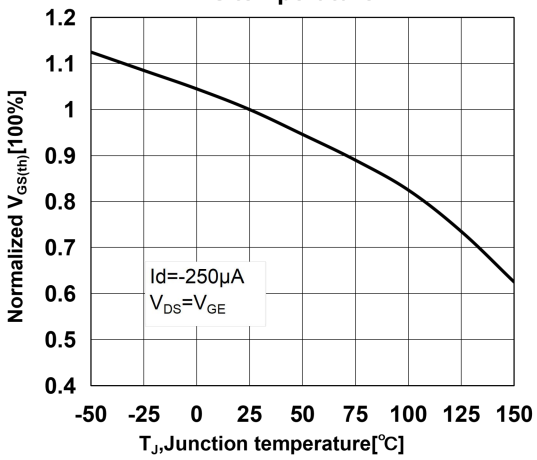
Maximum Drain Current vs Case Temperature



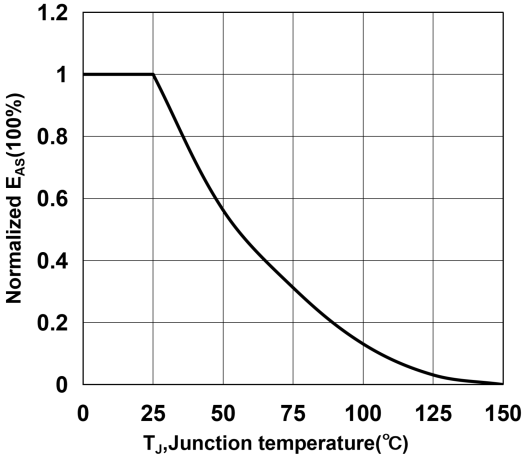
Normalized $V_{(BV)DS}$ vs temperature



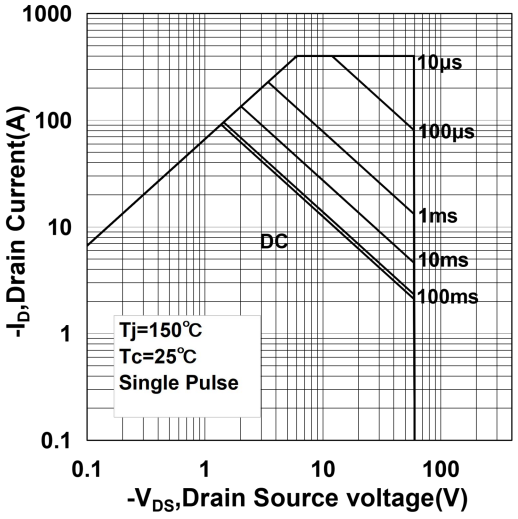
Normalized gate threshold voltage vs temperature



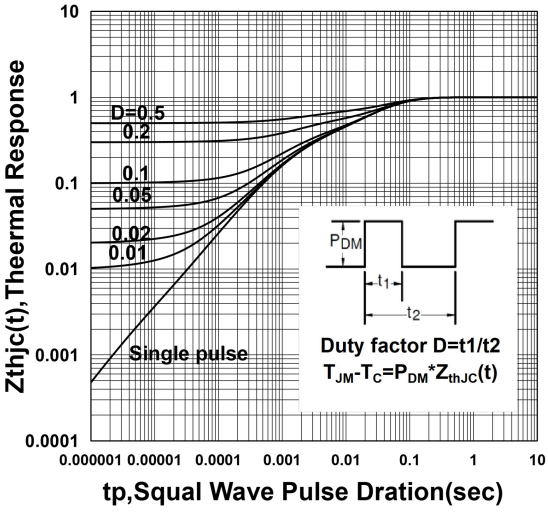
Normalized maximum avalanche energy vs temperature



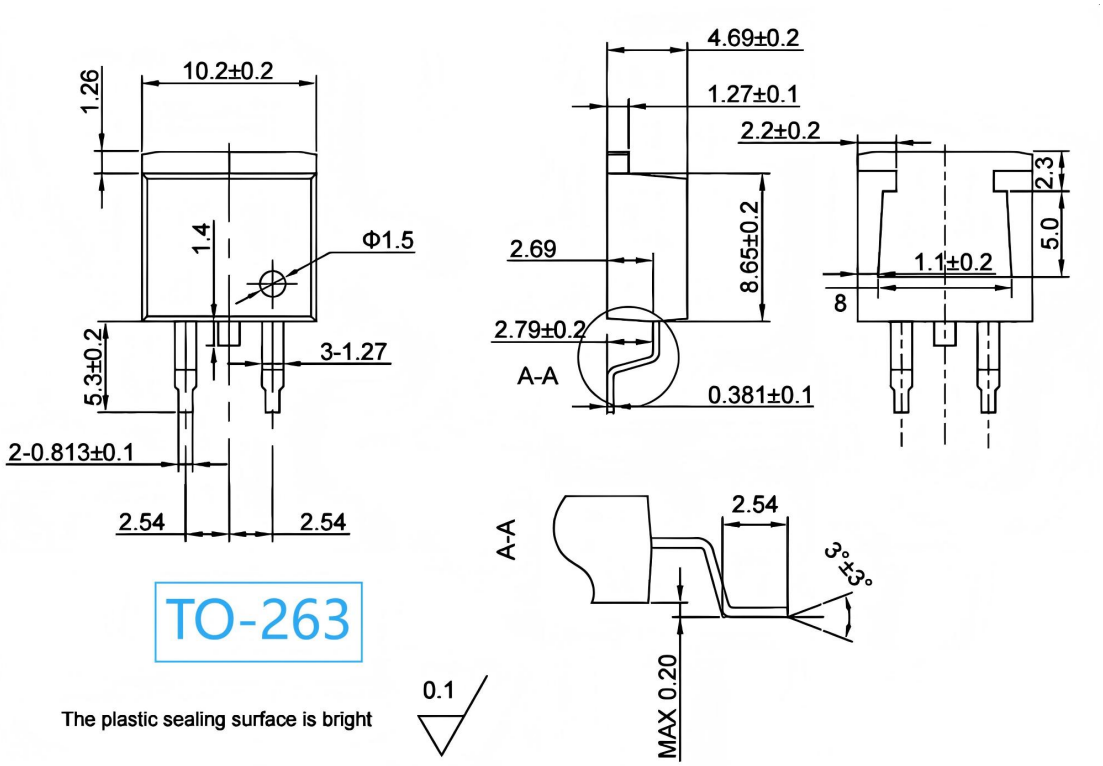
Safe Operating Area



Transient response Curve



Package Mechanical DATA



Notes:

1. Unmarked tolerance±0.15mm;unmarked R<0.15mm
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