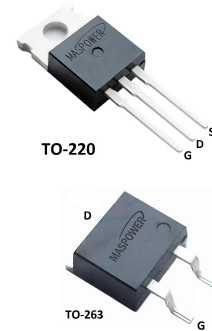


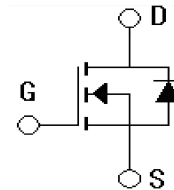
Features

- Low gate charge
- Low Crss (Typical 82pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product



Applications

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- UPS



Absolute Ratings (Tc=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	250	V
Drain Current -continuous	I_D	T=25°C	40
		T=100°C	25
Drain Current - pulse (note1)	I_{DM}	160	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulsed Avalanche Energy (note 2)	E_{AS}	880	mJ
Power Dissipation	PD	158	W
	TC=25°C	1.265	W/°C
Operating and Storage Temperature Range	T_j, T_{STG}	-55~+150	°C
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
Off-Characteristics						
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	250	-	-	V
Drain cut-off current	I_{DSS}	$V_{DS}=250V, V_{GS}=0V$ Tj=25°C	-	-	1	μA
		$V_{DS}=200V, T_j=125°C$	-	-	10	
Gate-body leakage current,forward	I_{GSSF}	$V_{DS}=0V, V_{GS}=30V$	-	-	100	nA
Gate-body leakage	I_{GSSR}	$V_{DS}=0V, V_{GS}=-30V$	-	-	-100	nA

current,reverse						
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS},I_D=250\mu A$	2.5	3.5	4.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V,I_D=12A$	-	100	120	mΩ
Forward Transconductance	g_{fs}	$V_{DS}=40V$, $I_D=20A(note4)$	-	27	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V$, $V_{GS}=0V$, $f=1.0MHz$ (Note 4)	-	3300	4000	pF
Output capacitance	C_{oss}		-	650	800	pF
Reverse transfer capacitance	C_{rss}		-	82	105	pF
Switching Characteristics						
Turn-On delay time	$t_{d(on)}$	$V_{DD}=125V,I_D=40A$, $R_G=25\Omega$, $V_{GS}=10V$ (Note 4,5)	-	80	115	ns
Turn-On rise time	t_r		-	600	930	ns
Turn-Off delay time	$t_{d(off)}$		-	145	185	ns
Turn-Off Fall time	t_f		-	180	234	ns
Total Gate Charge	Q_g	$V_{DS}=200V$, $I_D=40A$, $V_{GS}=10V(note\ 4,5)$	-	87	110	nC
Gate-Source charge	Q_{gs}		-	25	-	nC
Gate-Drain charge	Q_{gd}		-	42	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V,I_S=10A$ (note3)	-	0.82	1.5	V
Maximum Continuous Drain-Source Diode Forward Current	I_S		-	-	40	A
Reverse recovery time	t_{rr}	$V_{GS}=0V,I_F=40A$ $di_F/dt=100A/us(note\ 4)$	-	210	-	ns
Reverse recovery charge	Q_{rr}		-	2.1	-	uC

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.79	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W

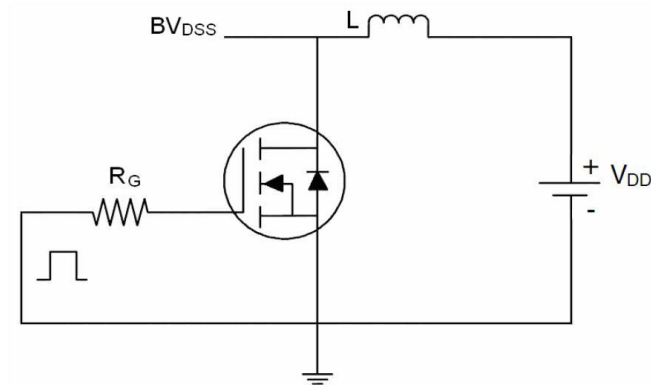
Notes:

- Pulse width limited by maximum junction temperature
- $L=1.1mH, I_{AS}=40A, V_{DD}=50V, R_G=25\Omega, \text{Starting } T_J=25^\circ C$
- $ISD \leq 40A, di/dt \leq 200A/\mu s, V_{DD} \leq BVDSS, \text{Starting } T_J=25^\circ C$
- Pulse Test: Pulse Width $\leq 300\mu s, \text{Duty Cycle} \leq 2\%$

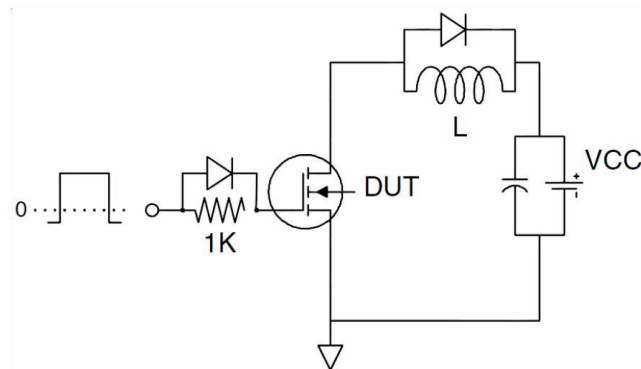
5. Essentially independent of operating temperature

Test Circuit

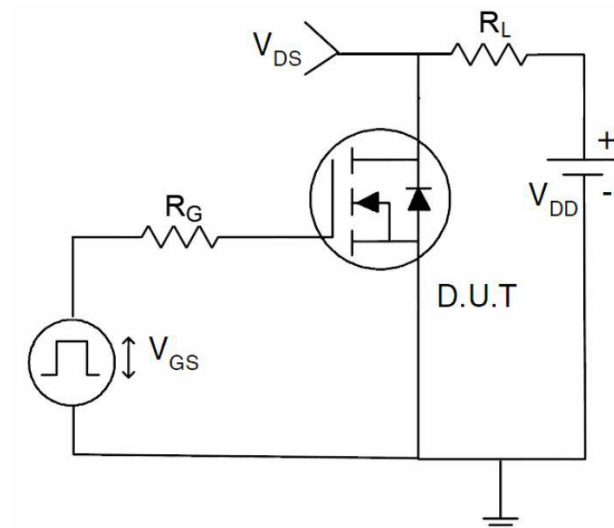
1) E_{AS} test Circuit



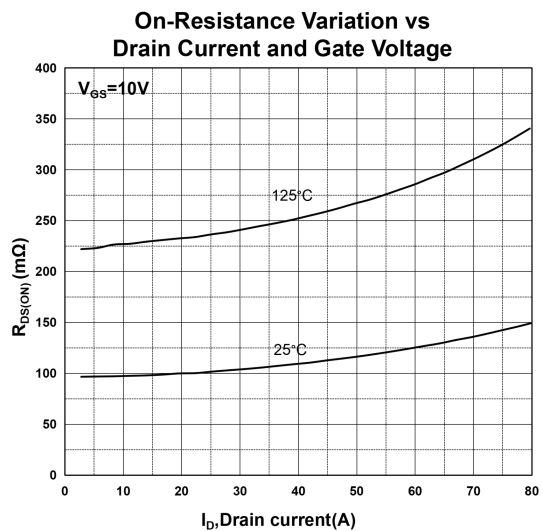
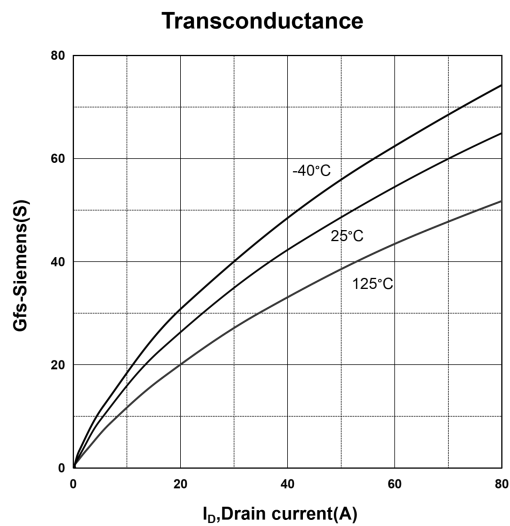
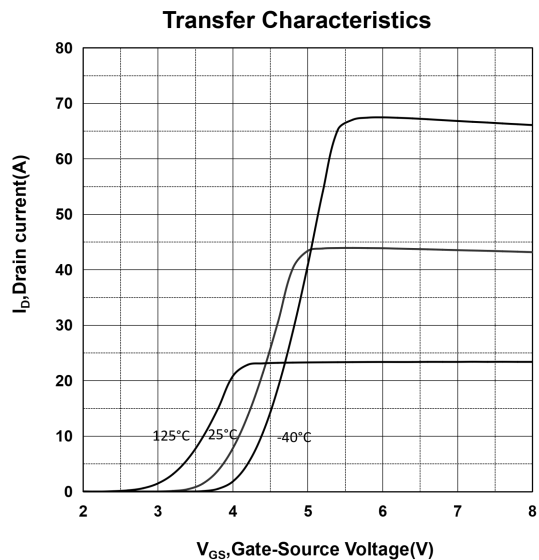
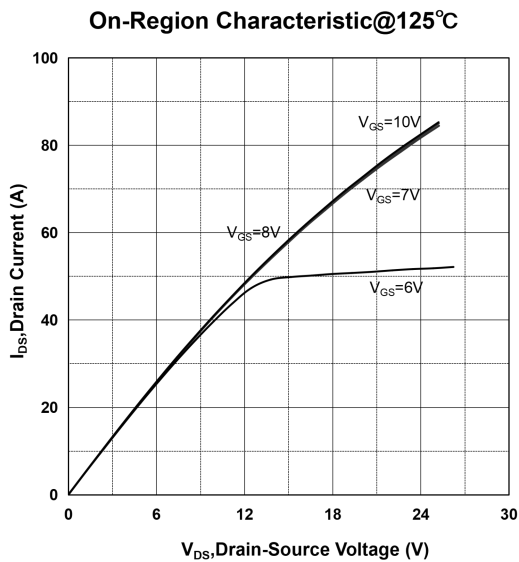
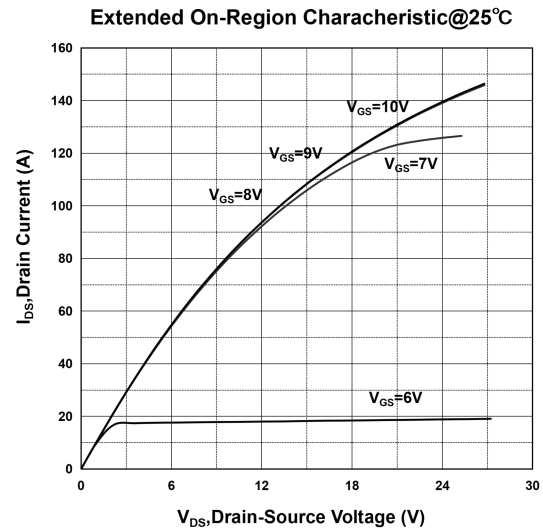
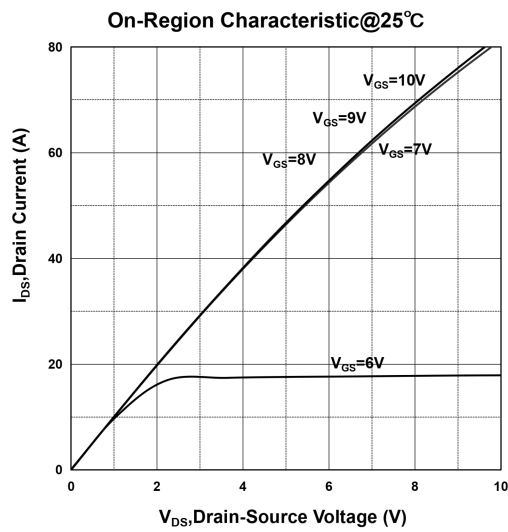
2) Gate charge test Circuit

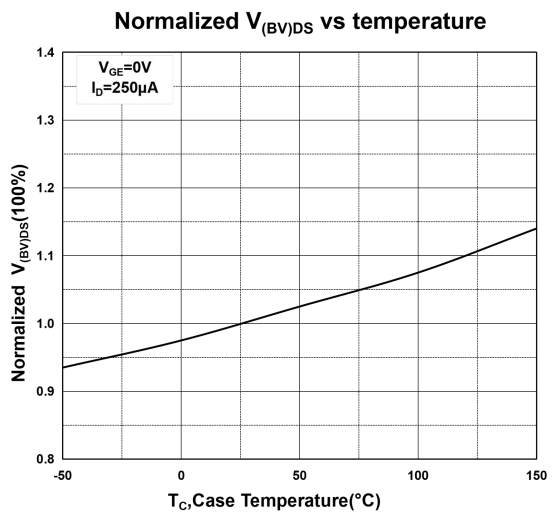
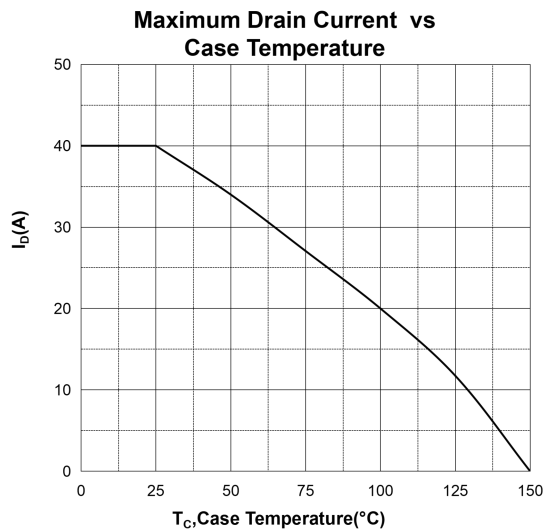
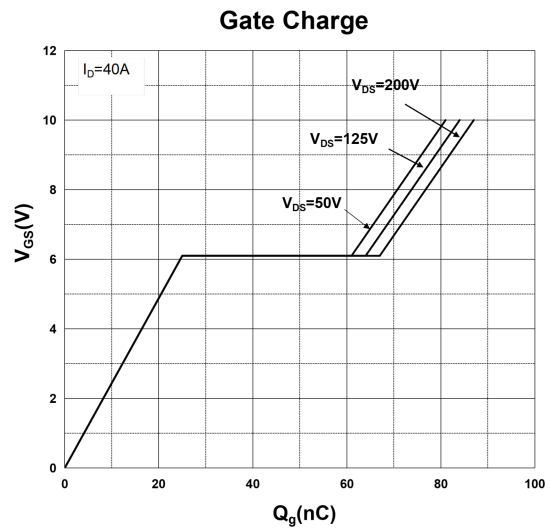
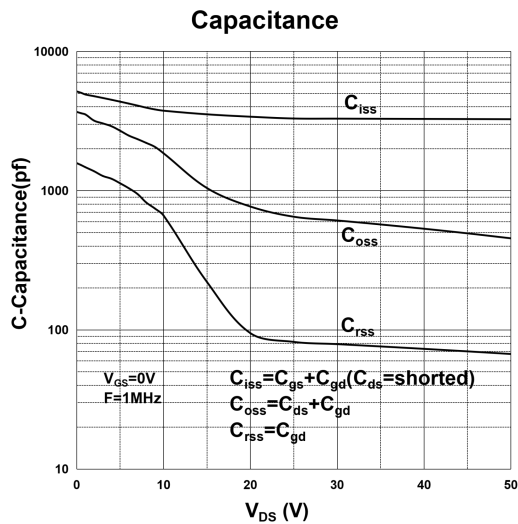
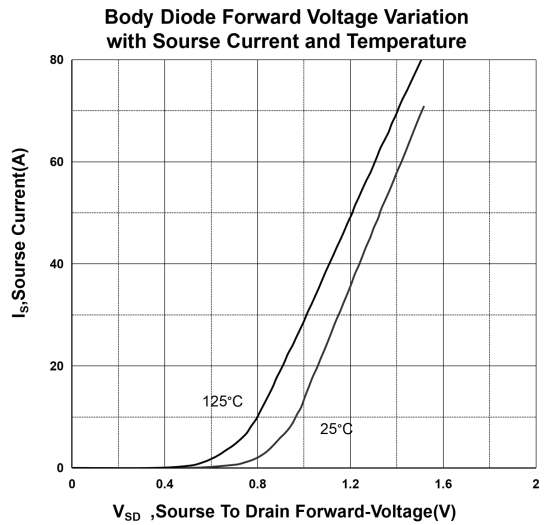
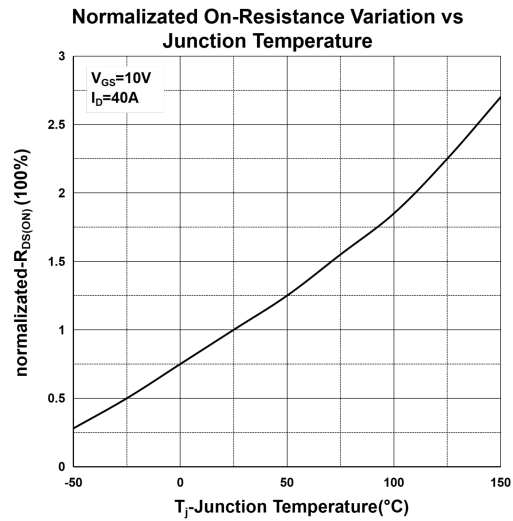


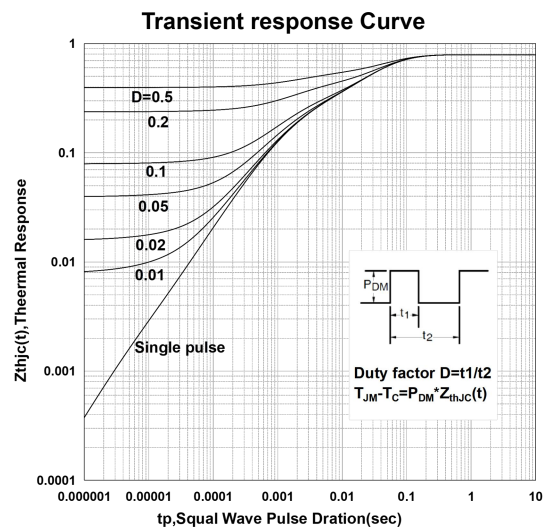
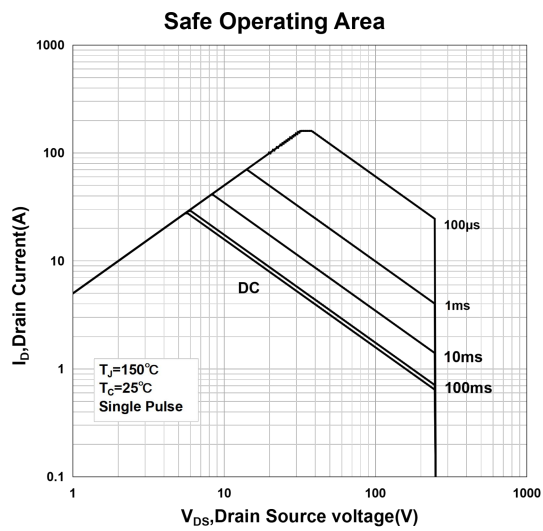
3) Switch Time Test Circuit



Typical Electrical and Thermal Characteristics (Curves)







Package Mechanical DATA

