

Features

- 100V/190A,
 $R_{DS(ON)} = 7m\Omega(Typ.)@V_{GS}=10V$
- High Ruggedness
- Enhanced FBSOA for superior linear mode operation
- Fully Isolated Package
- 100% Avalanche Tested
- 100% Rg Tested

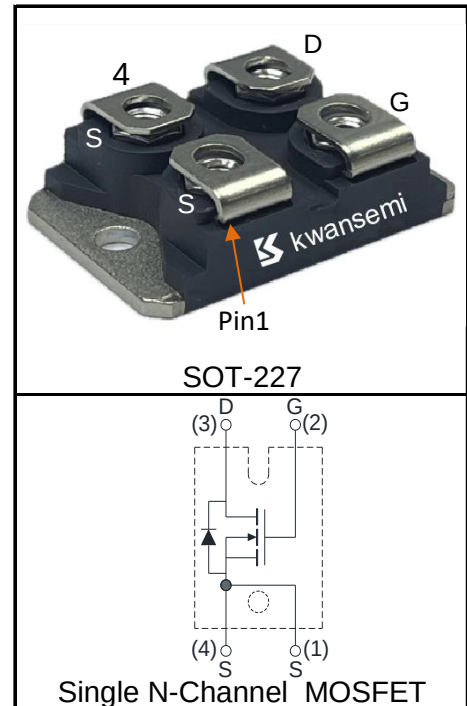
Applications

- Switch Mode Power Supply
- Linear amplifiers
- Solid state circuit breakers



Halogen-Free

Pin Description



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		100	V
V _{GSS}	Gate-Source Voltage		±20	
T _{Jmax}	Maximum Junction Temperature		150	°C
T _J ,T _{STG}	Operating and Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _C =25°C	190	A
V _{ISO}	Insulation Withstand Voltage (AC-RMS)		2500	V
M _d	Mounting Torque		1.3	Nm
Mounted on Large Heat Sink				
I _{DP} ^①	Pulse Drain Current	T _C =25°C	760	A
I _D ^②	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	190	A
		T _C =100°C	127	
P _D	Maximum Power Dissipation	T _C =25°C	568	W
		T _C =100°C	227	
R _{θJC}	Thermal Resistance-Junction to Case		0.22	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^④	Avalanche Energy, Single Pulsed		4900	mJ

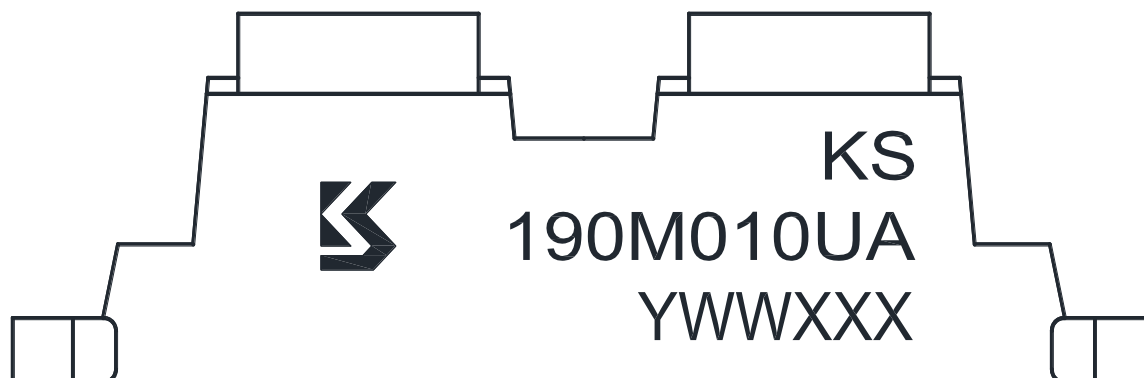
Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KSM190M010UAAA1			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	100			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
R _{DS(ON)} ⑤	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =190A		7	9	mΩ
		V _{GS} =6V, I _{DS} =90A		9	12	mΩ
Diode Characteristics						
V _{SD} ⑤	Diode Forward Voltage	I _{SD} =190A, V _{GS} =0V		1.01	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =190A, dI _{SD} /dt=100A/μs		213		ns
Q _{rr}	Reverse Recovery Charge			1.4		μC
Dynamic Characteristics ⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1.3		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =50V, Frequency=1.0MHz		5615		pF
C _{oss}	Output Capacitance			1130		
C _{rss}	Reverse Transfer Capacitance			750		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =50V, I _{DS} =190A, V _{GEN} =10V, R _G =6Ω		57		ns
t _r	Turn-on Rise Time			136		
t _{d(OFF)}	Turn-off Delay Time			170		
t _f	Turn-off Fall Time			246		
Gate Charge Characteristics ⑥						
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =10V, I _{DS} =190A		402		nC
Q _{gs}	Gate-Source Charge			34		
Q _{gd}	Gate-Drain Charge			257		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature.
 - ③ Limited by T_{Jmax} , Starting $T_J = 25^{\circ}\text{C}$, $I_{ASmax} = 140A$, $L=0.5mH$, $V_{DD} = 80V$, $R_G = 25\Omega$, $V_{GS}=10V$. Part not recommended for use above this value. 100% Final Test at $I_{AS}=95A$, $L=0.5mH$.
 - ④ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑤ Guaranteed by design, not subject to production testing.

Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KSM190M010UAAA1	SOT-227	Tray	36	-	-

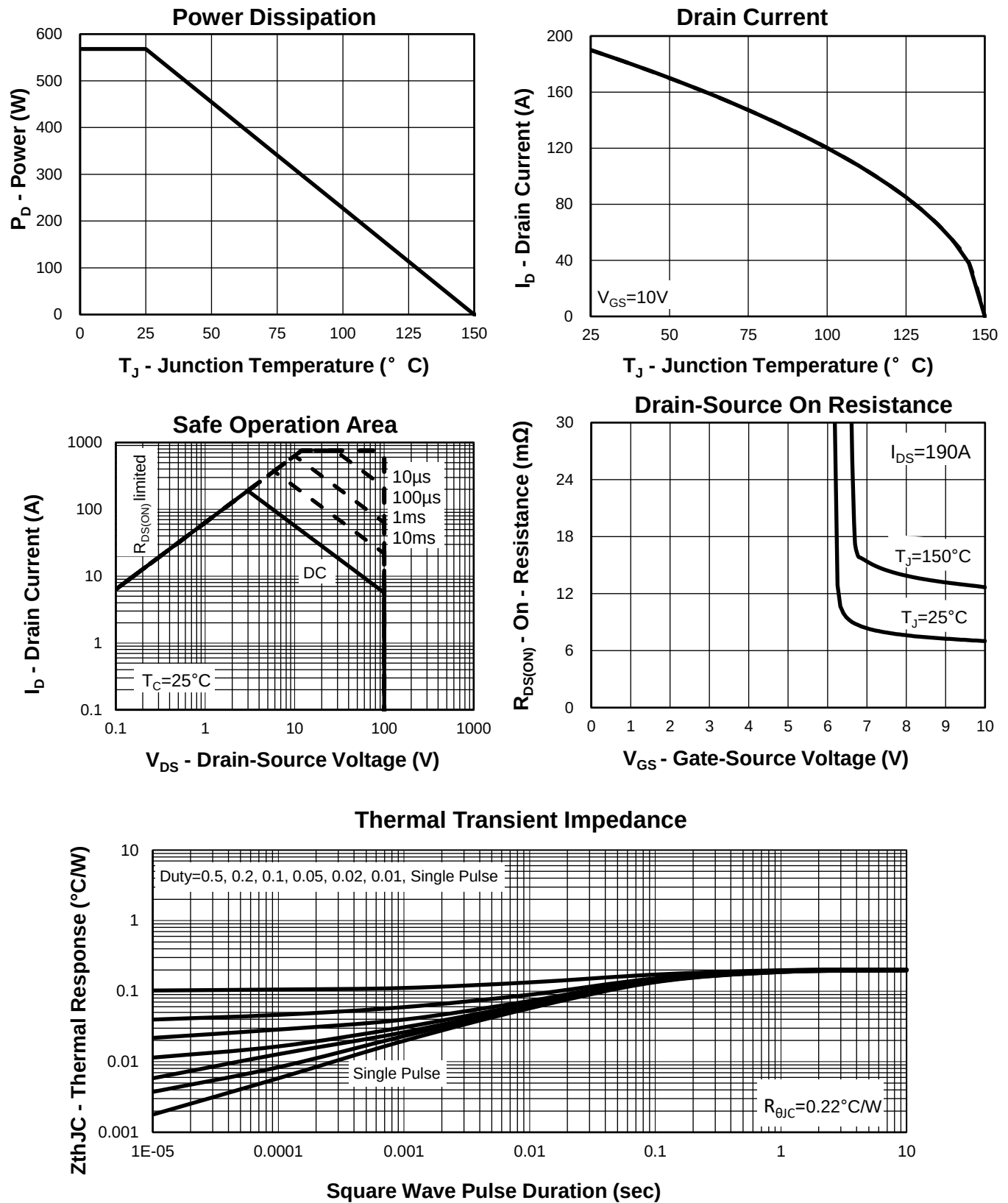


1st Line: Kwansemi LOGO, Kwansemi Code(KS)

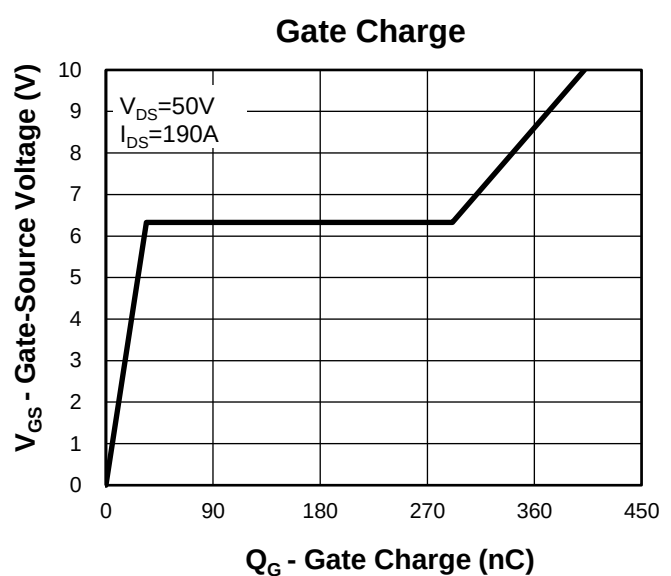
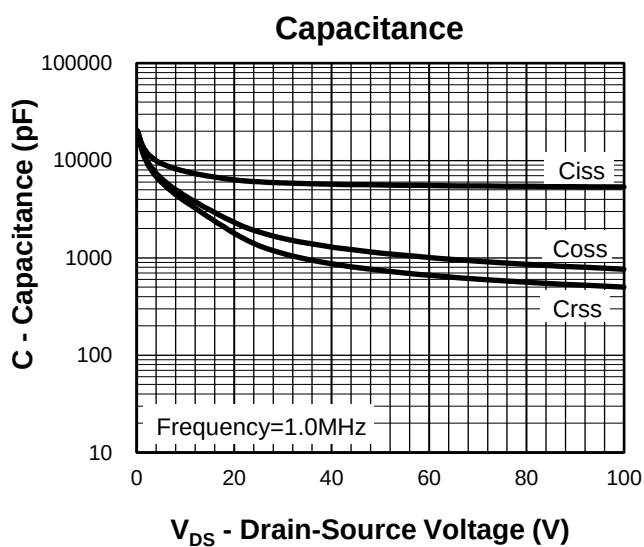
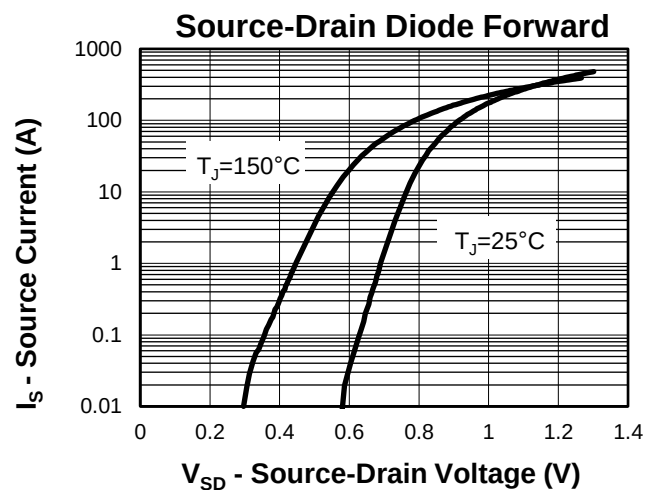
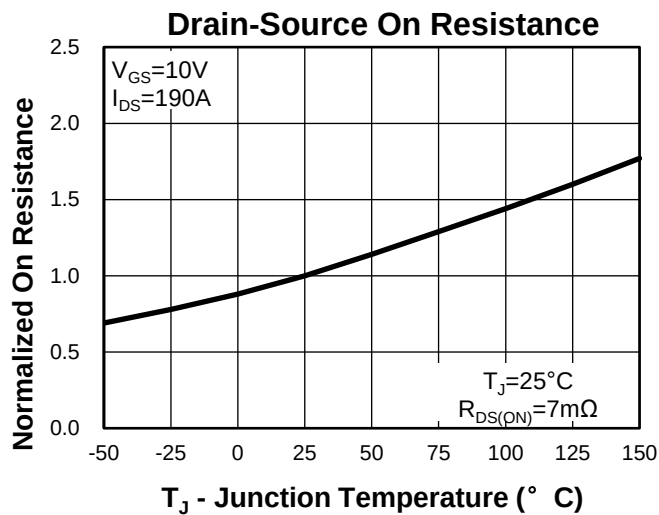
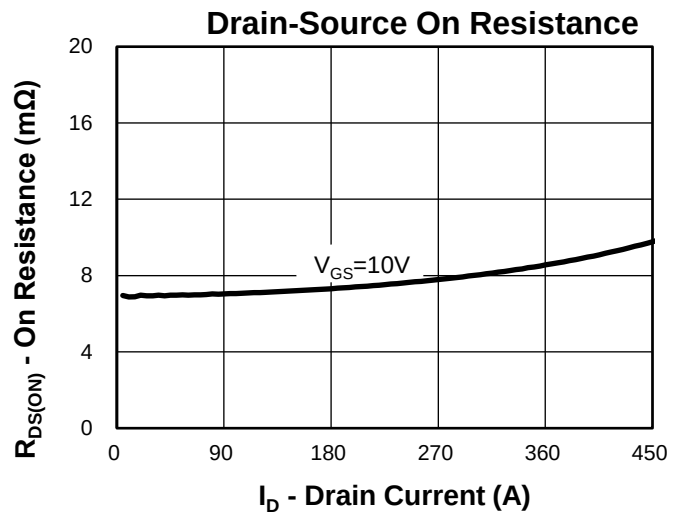
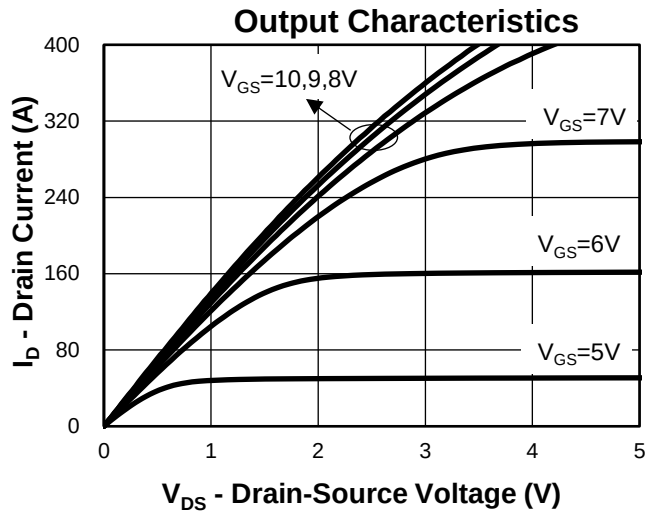
2nd Line: Part Number(190M010UA)

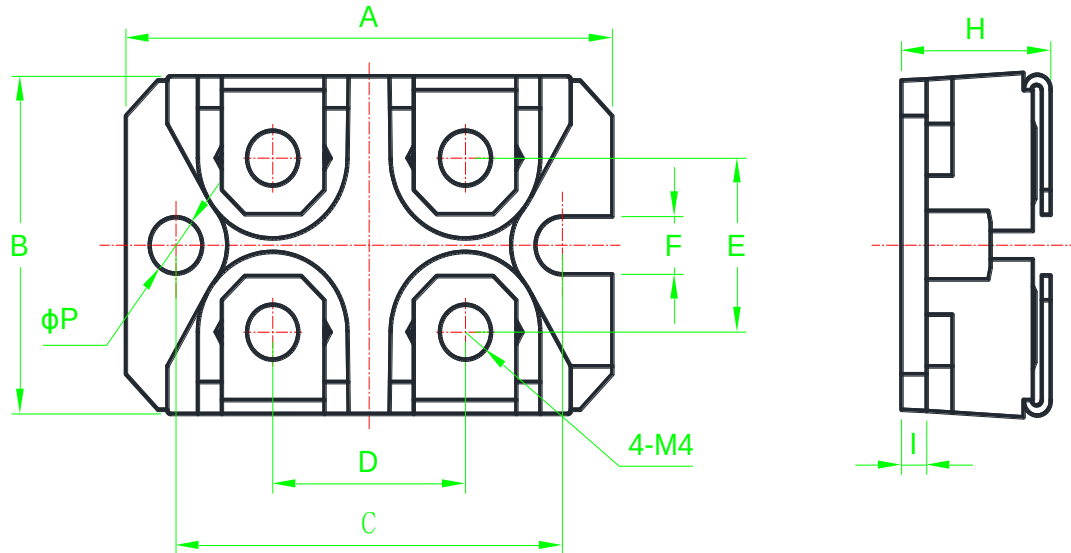
3rd Line: Lot Number(YWWXXX)

Typical Characteristics



Typical Characteristics

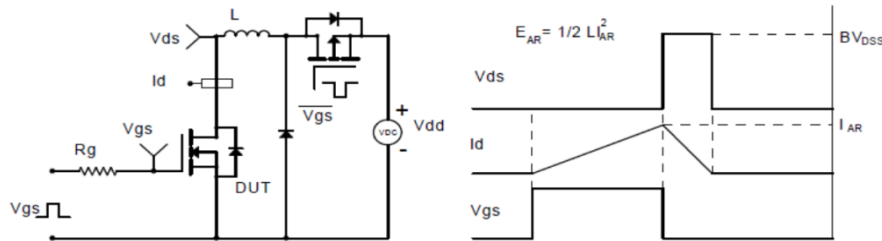


Package Information
SOT-227


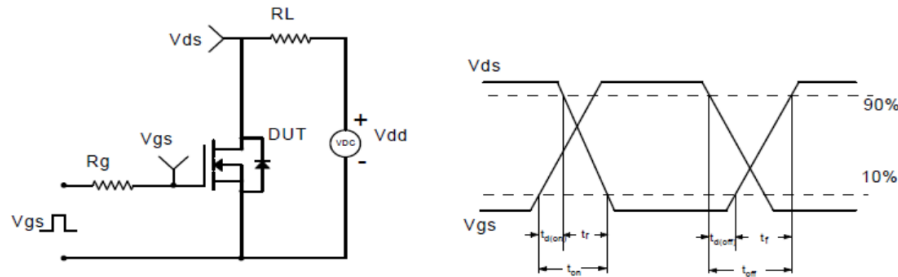
SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	37.80	38.00	38.20	1.488	1.496	1.504
B	25.00	25.40	25.80	0.984	1.000	1.016
C	29.90	30.20	30.50	1.177	1.189	1.201
D	14.50	15.00	15.50	0.571	0.591	0.610
E	12.20	12.70	13.20	0.480	0.500	0.520
F	4.10	4.30	4.50	0.161	0.169	0.177
H	11.00	11.50	12.00	0.433	0.453	0.472
I	1.90	2.00	2.10	0.075	0.079	0.083
ΦP	4.10	4.30	4.50	0.161	0.169	0.177

Note: Dimensions do not inclusive burrs and mold flash.

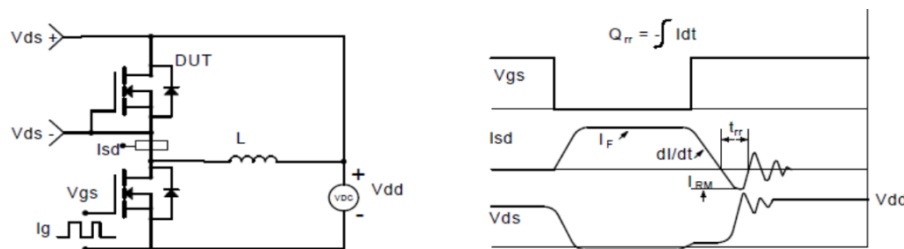
Avalanche Test Circuit and Waveforms



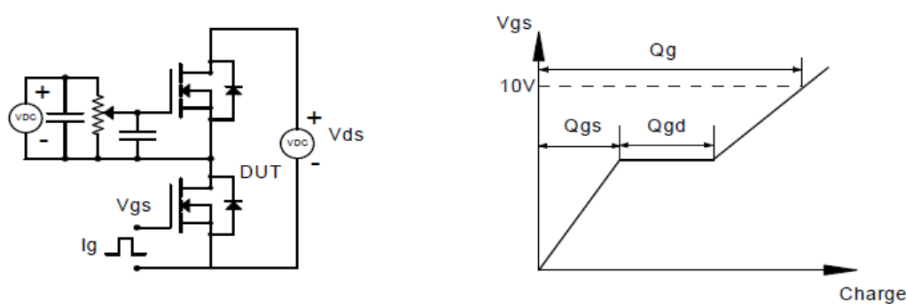
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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