

Features

- 150V/80A,
 $R_{DS(ON)} = 10.5m\Omega(Typ.)@V_{GS}=10V$
 $R_{DS(ON)} = 12m\Omega(Typ.)@V_{GS}=4.5V$
- Excellent $Q_G \times R_{DS(on)}$ product(FOM)
- SGT Technology
- 100% Avalanche Tested

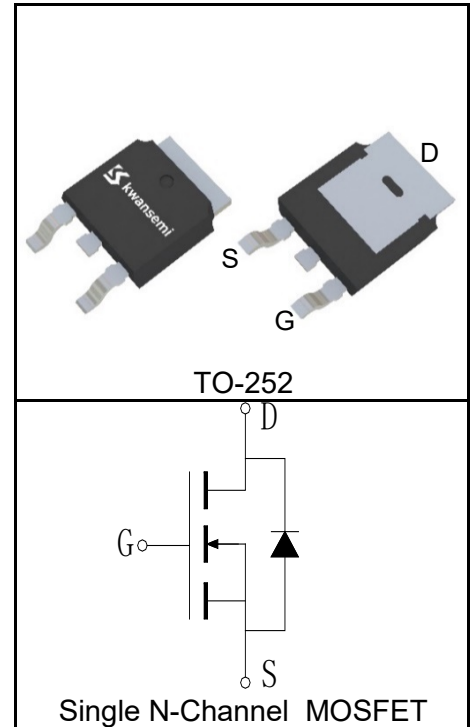
Applications

- Power Switching Appliaction
- Synchronous Rectification



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		150	V
V _{GSS}	Gate-Source Voltage		±20	
T _{Jmax}	Maximum Junction Temperature		175	°C
T _J ,T _{STG}	Operating and Storage Temperature Range		-55 to 175	°C
I _S	Diode Continuous Forward Current	T _C =25°C	80	A
Mounted on Large Heat Sink				
I _{DP} ^①	Pulse Drain Current	T _C =25°C	320	A
I _D ^②	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	80	A
		T _C =100°C	56	
P _D	Maximum Power Dissipation	T _C =25°C	159	W
		T _C =100°C	80	
R _{θJC}	Thermal Resistance-Junction to Case		0.94	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient		100	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^④	Avalanche Energy, Single Pulsed		400	mJ

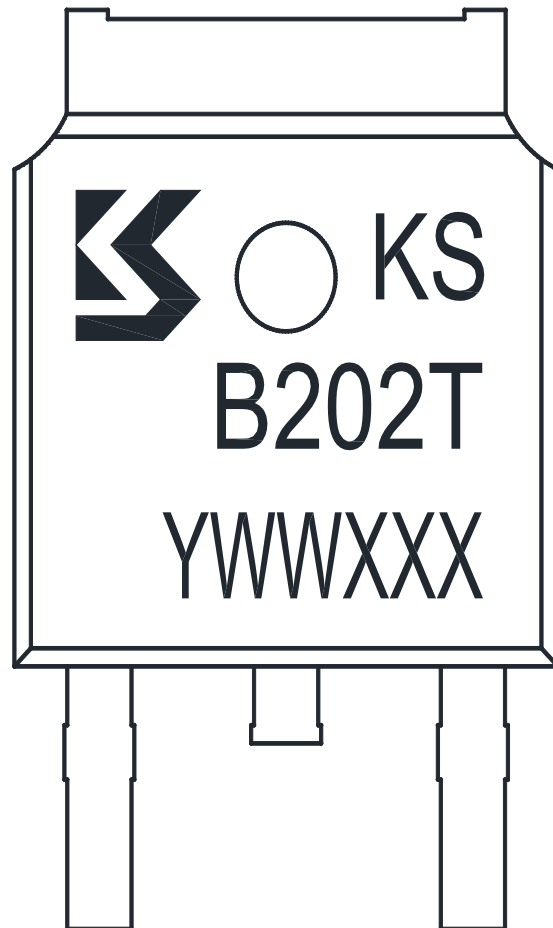
Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	Rating			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	150			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =150V, V _{GS} =0V			1	μA
			T _J =125°C		30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.1	1.7	2.3	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} =20A		10.5	13	
		V _{GS} =4.5V, I _{DS} =15A		12	16	mΩ
Diode Characteristics						
V _{SD} ^⑤	Diode Forward Voltage	I _{SD} =20A, V _{GS} =0V		0.83	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =20A, dI _{SD} /dt=100A/μs		43		ns
Q _{rr}	Reverse Recovery Charge			61		nC
Dynamic Characteristics ^⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1.7		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =75V, Frequency=200KHz		3850		pF
C _{oss}	Output Capacitance			285		
C _{rss}	Reverse Transfer Capacitance			15		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =75V, I _{DS} =20A, V _{GEN} =10V, R _G =3Ω		11		ns
t _r	Turn-on Rise Time			28		
t _{d(OFF)}	Turn-off Delay Time			44		
t _f	Turn-off Fall Time			25		
Gate Charge Characteristics ^⑥						
Q _g	Total Gate Charge	V _{DS} =75V, V _{GS} =10V, I _{DS} =20A		67		nC
Q _{gs}	Gate-Source Charge			10		
Q _{gd}	Gate-Drain Charge			17		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 60A.
 - ③ When mounted on 1 inch square copper board, $t \leq 10\text{sec}$. The value in any given application depends on the user's specific board design.
 - ④ Limited by T_{Jmax} , Starting $T_J = 25^{\circ}\text{C}$, $I_{ASmax} = 40A$, $L=0.5\text{mH}$, $V_{DD} = 48V$, $R_G = 25\Omega$, $V_{GS}=10V$. Part not recommended for use above this value. 100% Final Test at $I_{AS}=28A$, $L=0.5\text{mH}$.
 - ⑤ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑥ Guaranteed by design, not subject to production testing.

Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KSB202DAT	TO-252	Tape&Reel	2500	13"	16mm

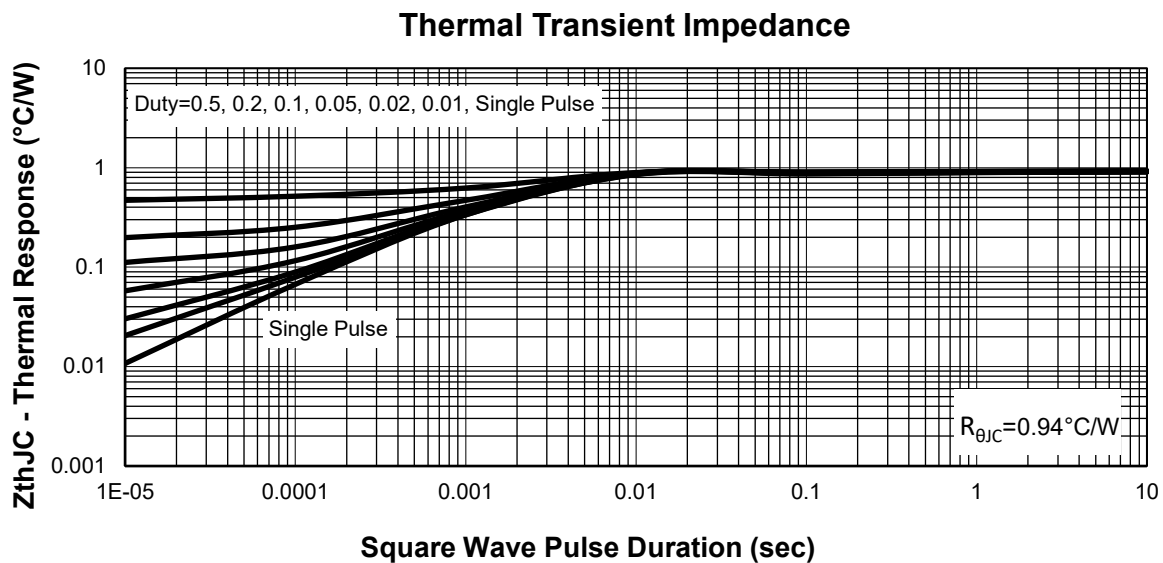
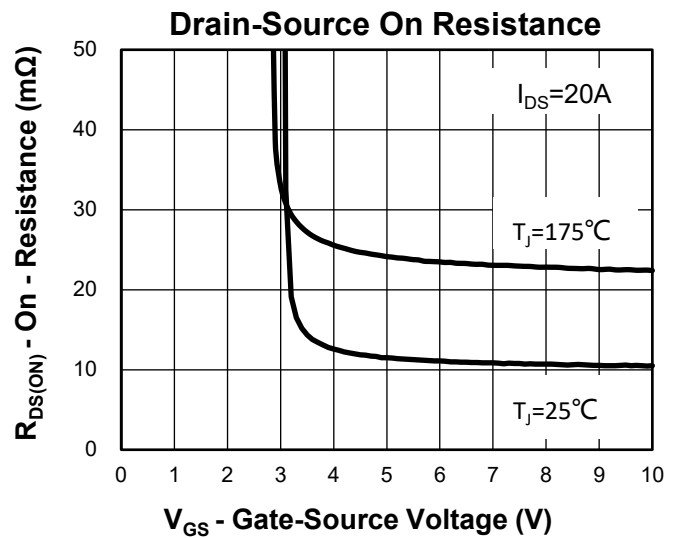
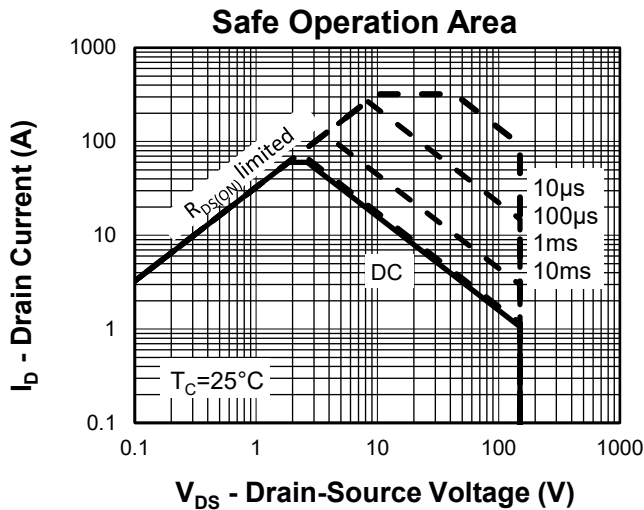
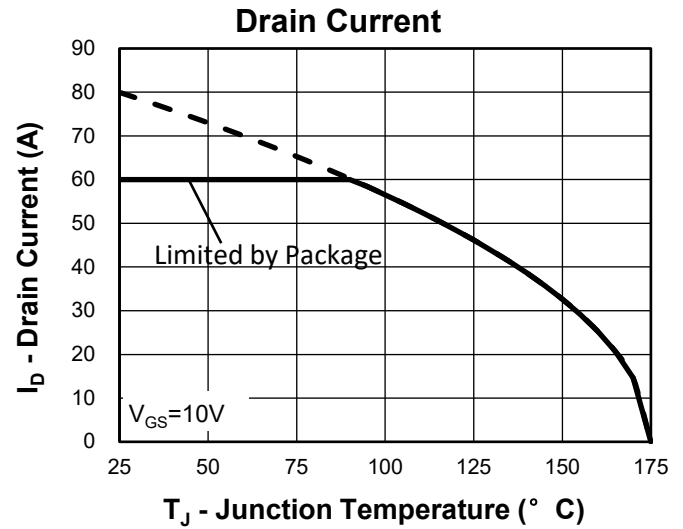
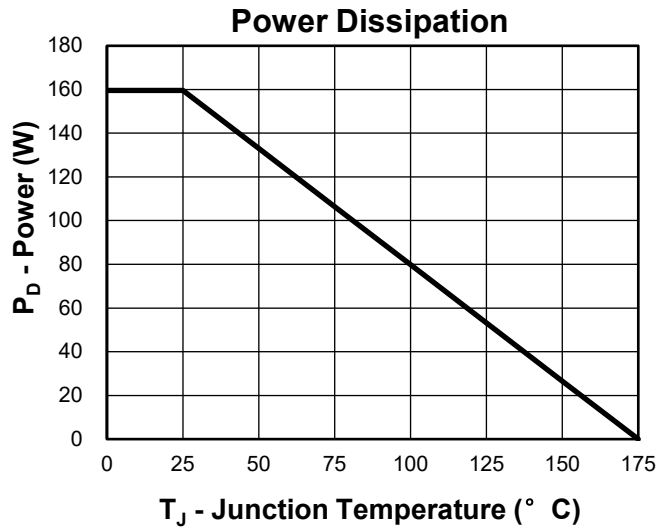


1st Line: Kwansemi LOGO, Kwansemi Code(KS)

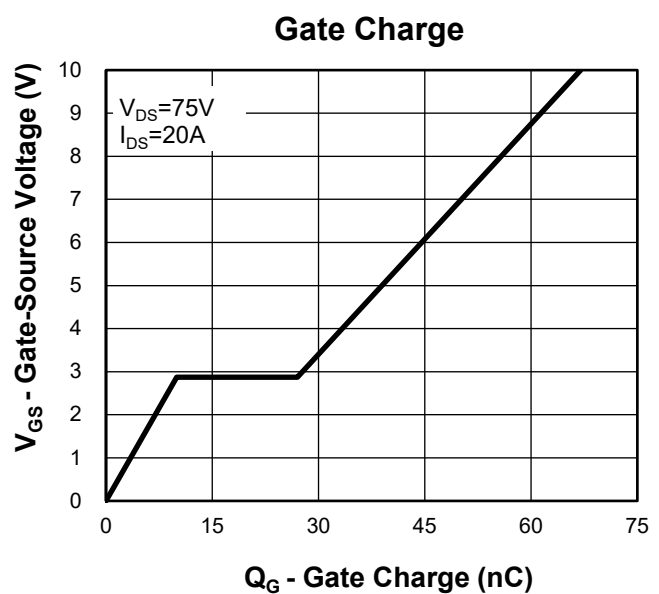
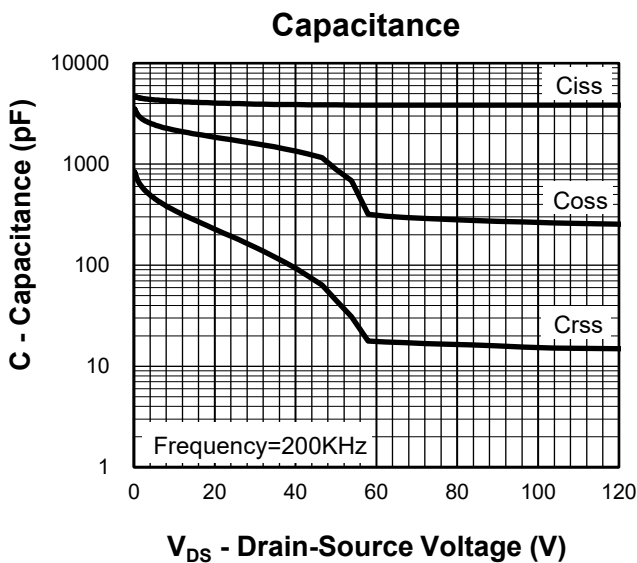
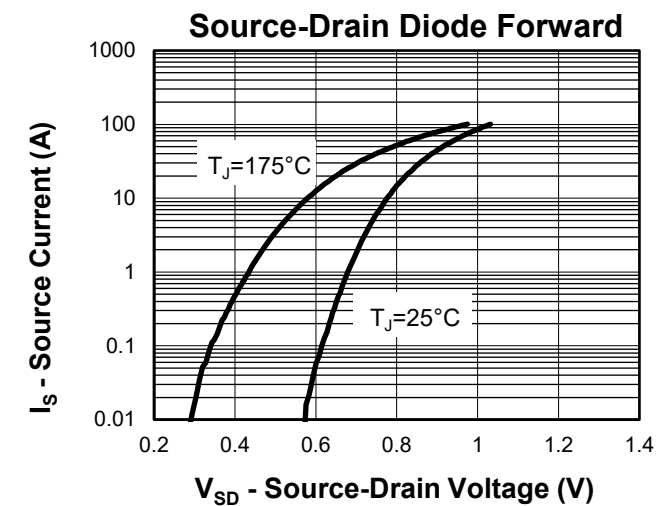
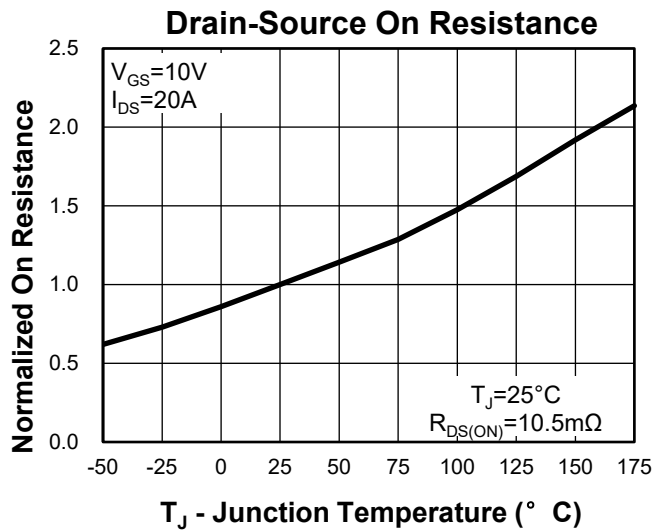
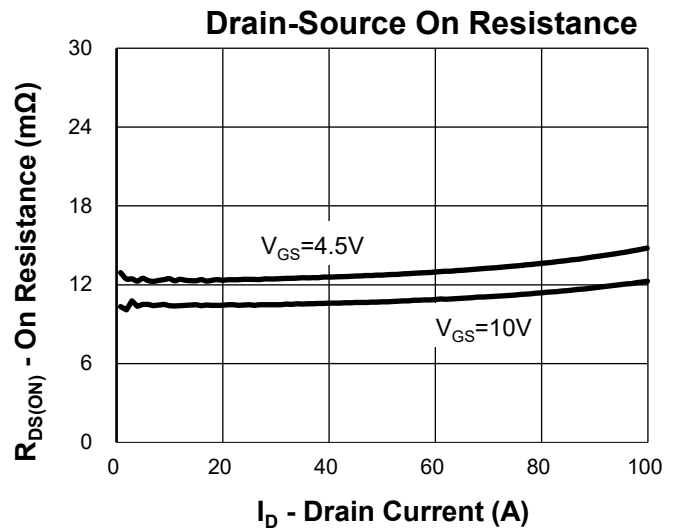
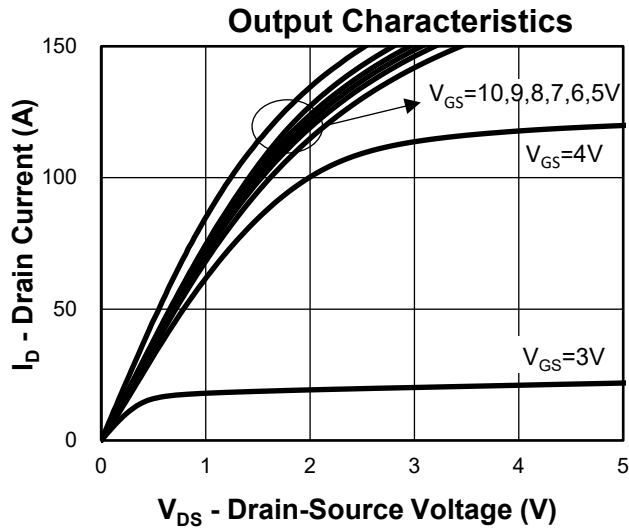
2nd Line: Part Number(B202T)

3rd Line: Lot Number(YWWXXX)

Typical Characteristics

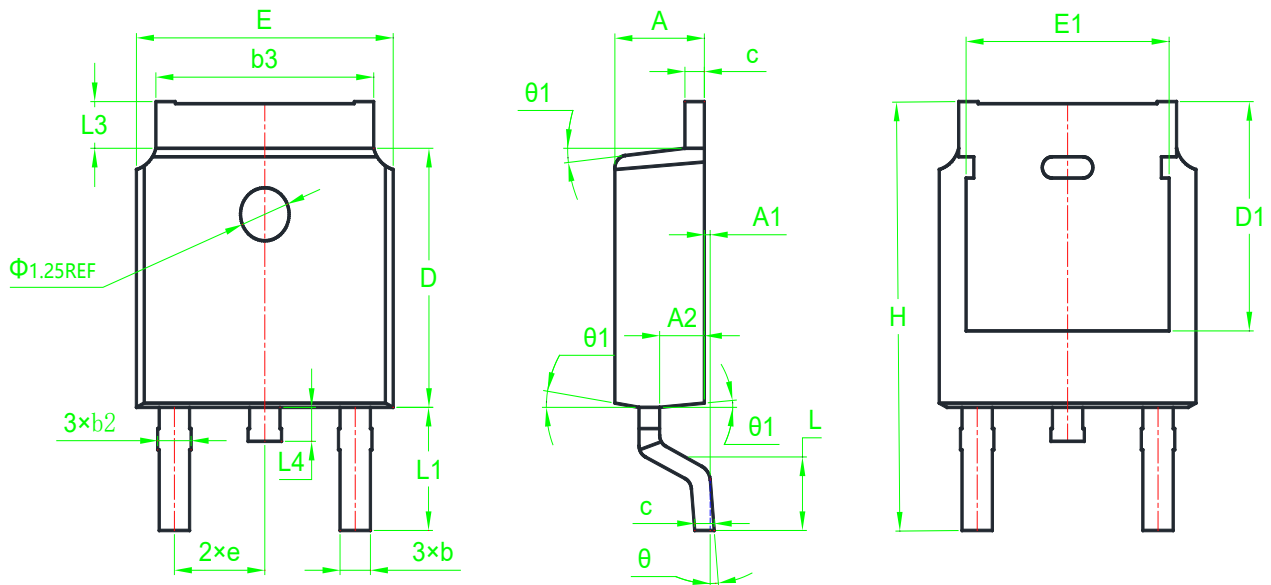


Typical Characteristics



Package Information

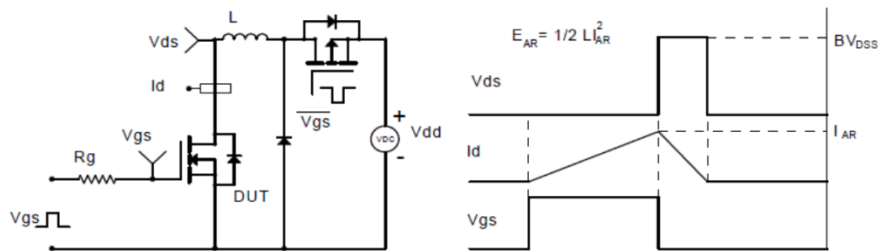
TO-252



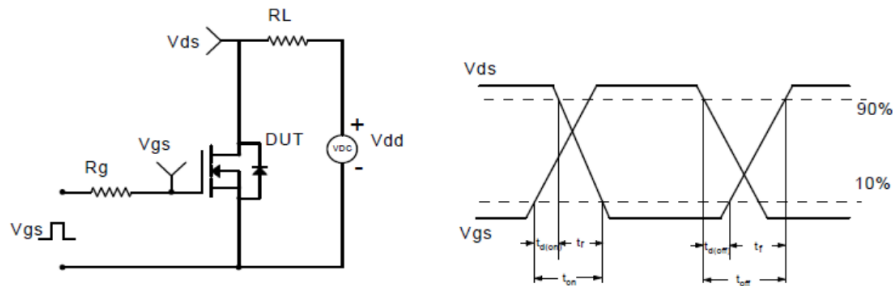
SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	2.20	2.30	2.38	0.087	0.091	0.094	E	6.40	6.60	6.70	0.252	0.260	0.264
A1	0.00	*	0.15	0.000	*	0.006	E1	4.55	*	5.15	0.179	*	0.203
A2	0.90	1.00	1.10	0.035	0.039	0.043	H	9.60	10.10	10.40	0.378	0.398	0.409
b	0.65	0.75	0.85	0.026	0.030	0.033	L	1.40	1.50	1.70	0.055	0.059	0.067
b2	0.72	*	0.90	0.028	*	0.035	L1	2.90REF			0.114REF		
b3	5.13	5.33	5.46	0.202	0.210	0.215	L3	0.90	*	1.25	0.035	*	0.049
c	0.47	0.51	0.54	0.019	0.020	0.021	L4	0.60	*	1.00	0.024	*	0.039
D	6.00	6.10	6.20	0.236	0.240	0.244	theta	0°	*	10°	0°	*	10°
D1	5.25	5.35	5.60	0.207	0.211	0.220	theta1	5°	*	9°	5°	*	9°
e	2.286BSC			0.090BSC									

Note: Dimensions do not inclusive burrs and mold flash.

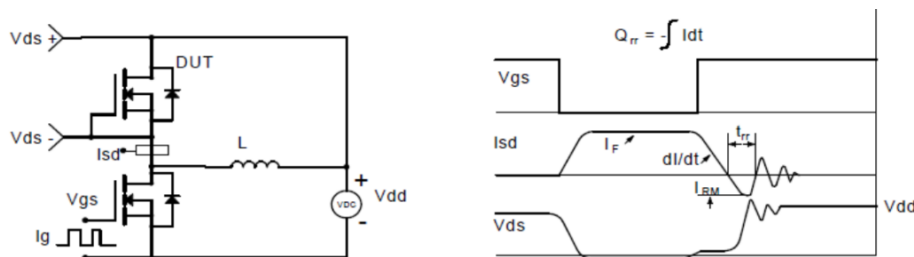
Avalanche Test Circuit and Waveforms



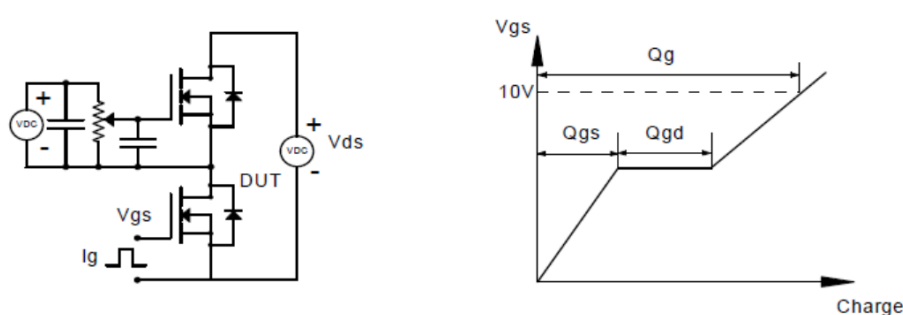
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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