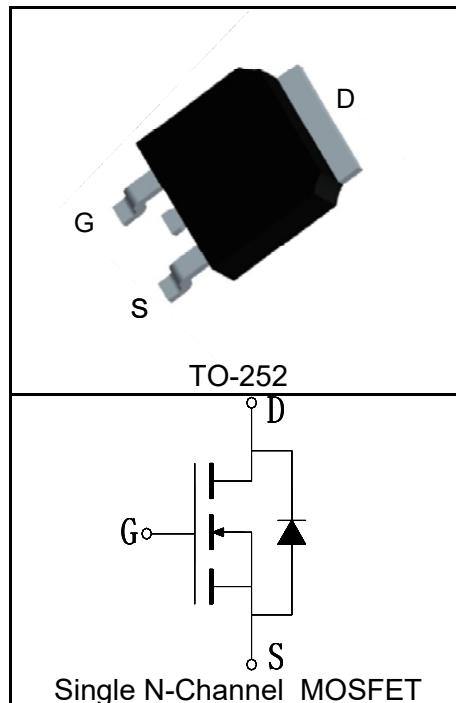


Features

- 20V/60A,
- $R_{DS\ (ON)} = 5m\Omega$ (Typ.)@ $V_{GS}=10V$
- $R_{DS\ (ON)} = 6m\Omega$ (Typ.)@ $V_{GS}=4.5V$
- $R_{DS\ (ON)} = 8m\Omega$ (Typ.)@ $V_{GS}=2.5V$
- Low $R_{DS\ (ON)}$
- Super High Dense Cell Design
- Reliable and Rugged

Pin Description



Applications

- Power Switching Application
- Load Switching



Halogen-Free

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ C$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 12	
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ C$	60
			A
Mounted on Large Heat Sink			
$I_{DP}^{(1)}$	300μs Pulse Drain Current Tested	$T_C=25^\circ C$	240
$I_D^{(2)}$	Continuous Drain Current($V_{GS}=4.5V$)	$T_C=25^\circ C$	60
		$T_C=100^\circ C$	38
P_D	Maximum Power Dissipation	$T_C=25^\circ C$	36
		$T_C=100^\circ C$	14
$R_{\theta JC}$	Thermal Resistance-Junction to Case	3.5	°C/W
$R_{\theta JA}^{(3)}$	Thermal Resistance-Junction to Ambient	100	°C/W
Drain-Source Avalanche Ratings			
$E_{AS}^{(4)}$	Avalanche Energy, Single Pulsed	57	mJ

Electrical Characteristics (T_C=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS2222DA			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.4	0.7	1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V			±100	nA
R _{DS(ON)} ^⑤	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =15A		5	6	mΩ
		V _{GS} =4.5V, I _{DS} =10A		6	8	mΩ
		V _{GS} =2.5V, I _{DS} =4A		8	12	mΩ
Diode Characteristics						
V _{SD} ^⑤	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V		0.8	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =10A, dI _{SD} /dt=100A/μs		13		ns
Q _{rr}	Reverse Recovery Charge			17		nC
Dynamic Characteristics ^⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		2.5		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz		1290		pF
C _{oss}	Output Capacitance			200		
C _{rss}	Reverse Transfer Capacitance			180		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, I _{DS} =10A, V _{GEN} =4.5V, R _G =3Ω		3.1		ns
t _r	Turn-on Rise Time			4.6		
t _{d(OFF)}	Turn-off Delay Time			9		
t _f	Turn-off Fall Time			9.4		
Gate Charge Characteristics ^⑥						
Q _g	Total Gate Charge	V _{DS} =10V, V _{GS} =4.5V, I _{DS} =10A		18		nC
Q _{gs}	Gate-Source Charge			7.5		
Q _{gd}	Gate-Drain Charge			8.5		

Notes: ①Pulse width limited by safe operating area.

②Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 60A.

③When mounted on 1 inch square copper board, t≤10sec. The value in any given application depends on the user's specific board design.

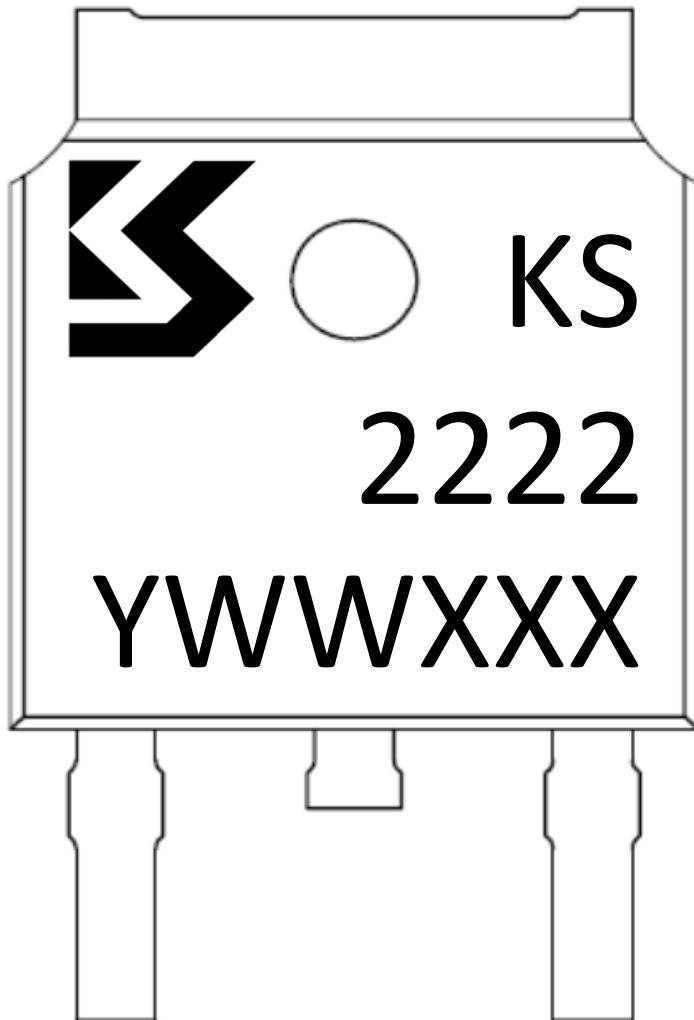
④Limited by T_{Jmax}, I_{AS}=34A, L=0.1mH, V_{DD}=10V, R_G=25Ω, Starting TJ=25°C.

⑤Pulse test; Pulse width≤300μs, duty cycle≤2%.

⑥Guaranteed by design, not subject to production testing.

Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS2222DA	TO-252	Tape&Reel	2500	13"	16mm

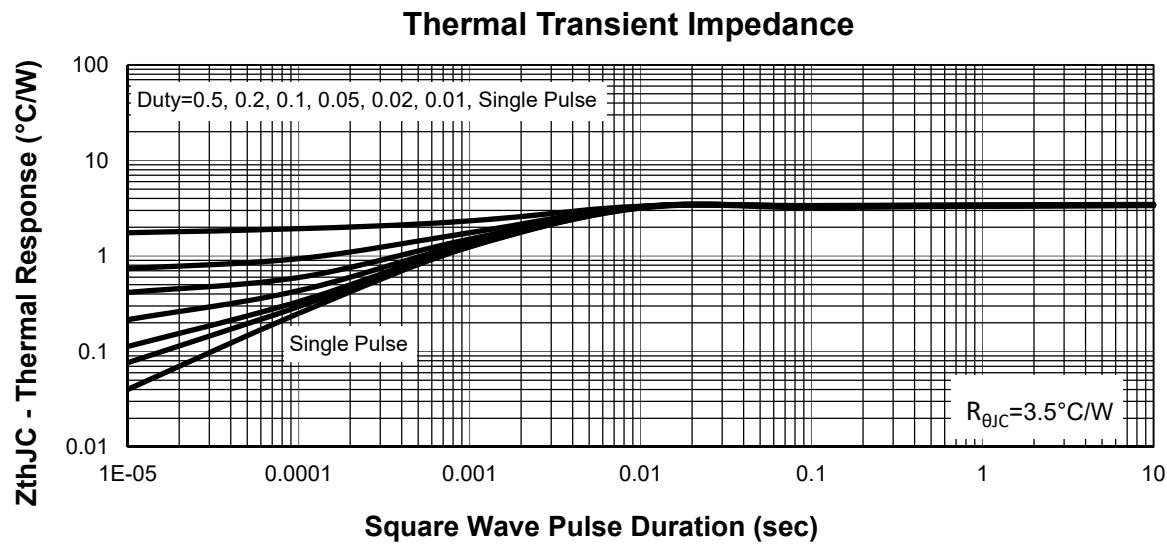
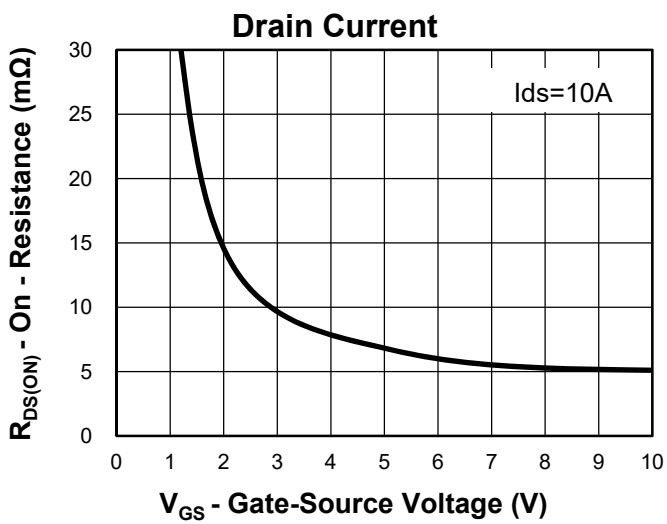
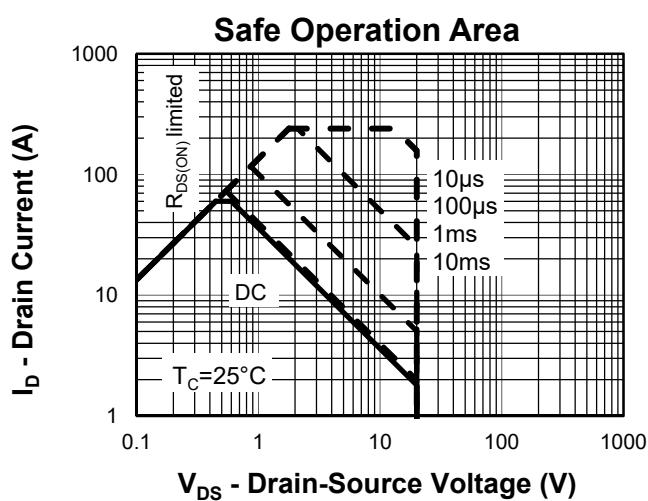
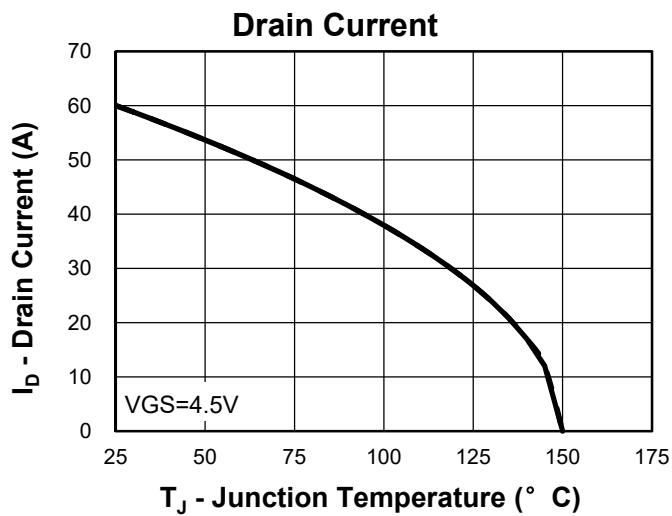
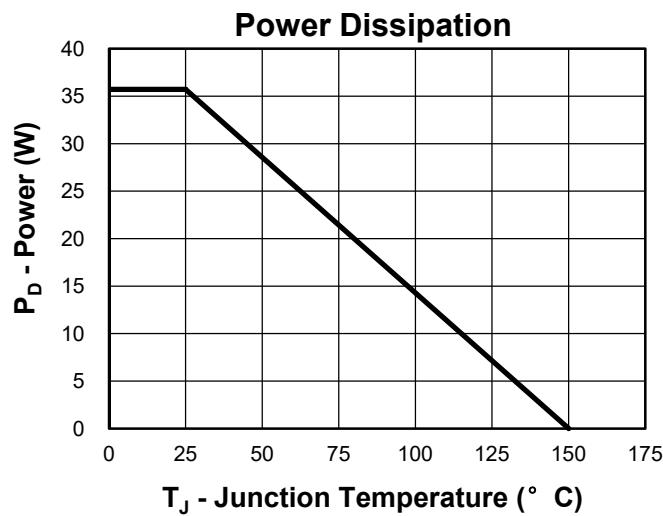


Y =Year,2017-A,2018-B,etc.

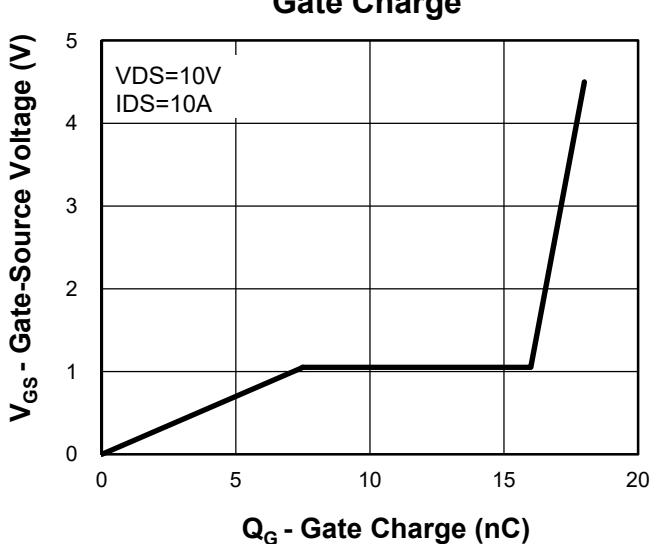
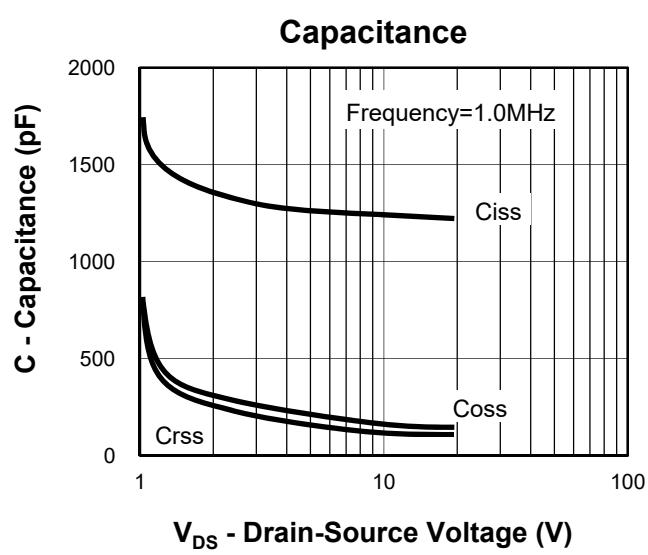
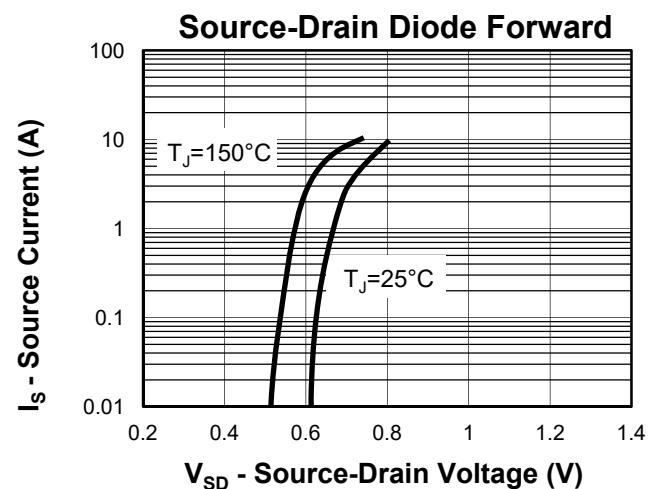
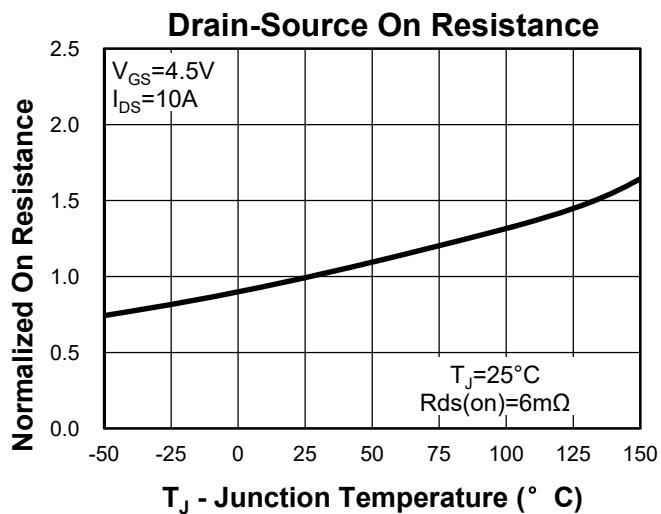
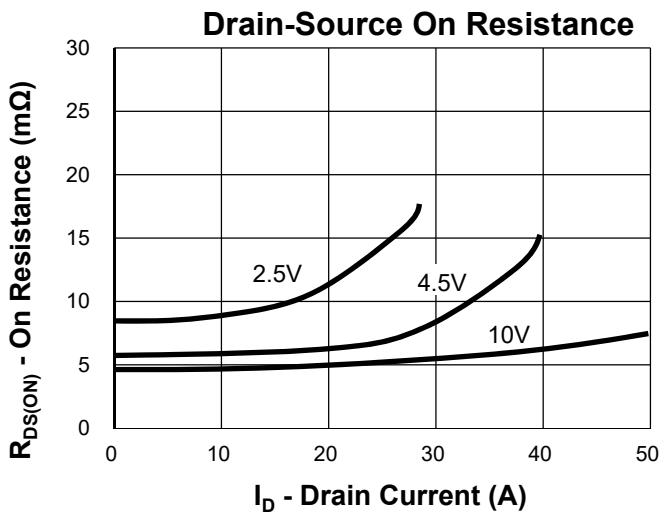
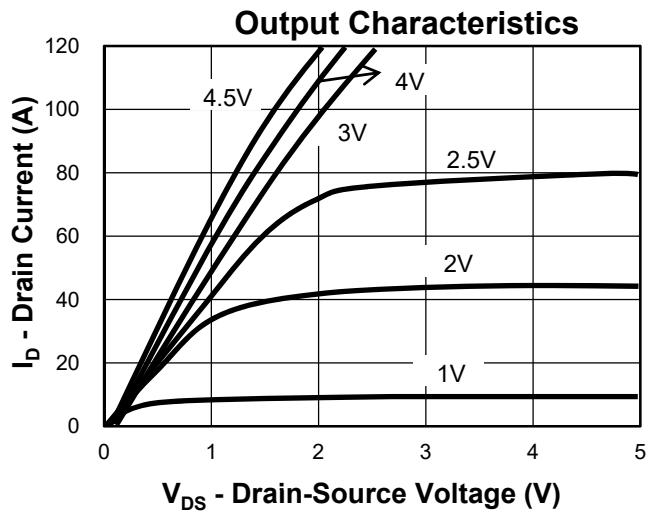
WW =Week.

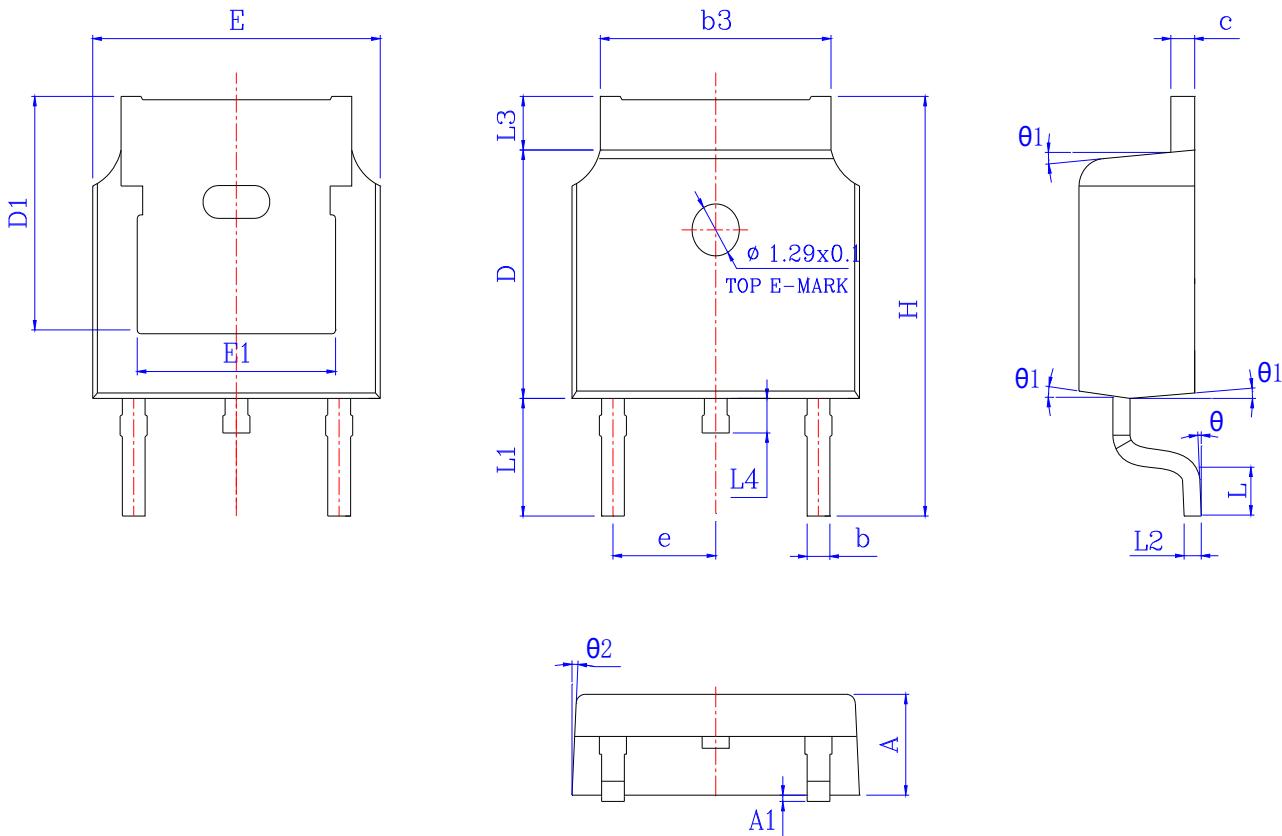
XXX =Lot number.

Typical Characteristics



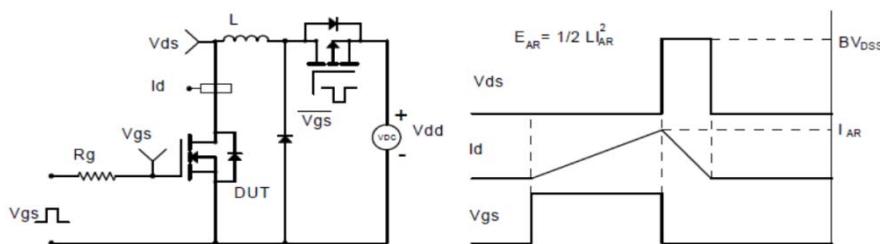
Typical Characteristics



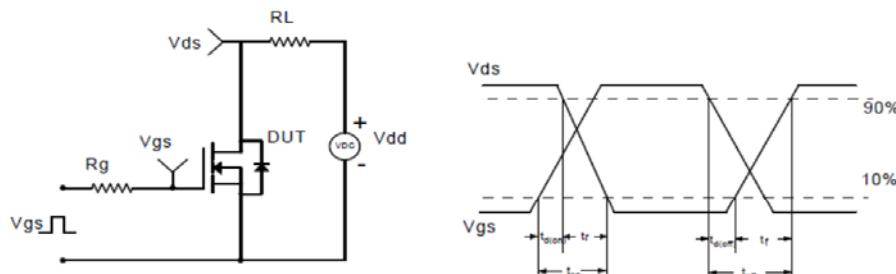
Package Information
TO-252


SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	2.200	2.300	2.400	0.087	0.091	0.094
A1	*	*	0.100	*	*	0.004
b	0.660	0.760	0.860	0.026	0.030	0.034
b3	5.130	5.295	5.460	0.202	0.208	0.215
c	0.470	0.535	0.600	0.019	0.021	0.024
D	6.000	6.100	6.200	0.236	0.240	0.244
D1	5.30 REF			0.20 REF		
E	6.500	6.600	6.700	0.256	0.260	0.264
E1	4.700	4.810	4.920	0.185	0.189	0.194
e	2.28 REF			0.09 REF		
H	9.800	10.100	10.400	0.386	0.398	0.409
L	1.400	1.550	1.700	0.055	0.061	0.067
L1	2.743 REF			0.108 REF		
L2	0.510 BSC			0.020 BSC		
L3	0.900	1.075	1.250	0.035	0.042	0.049
L4	0.600	0.800	1.000	0.024	0.031	0.039
θ	0°	*	8°	0°	*	8°
θ1	5°	7°	9°	5°	7°	9°
θ2	5°	7°	9°	5°	7°	9°

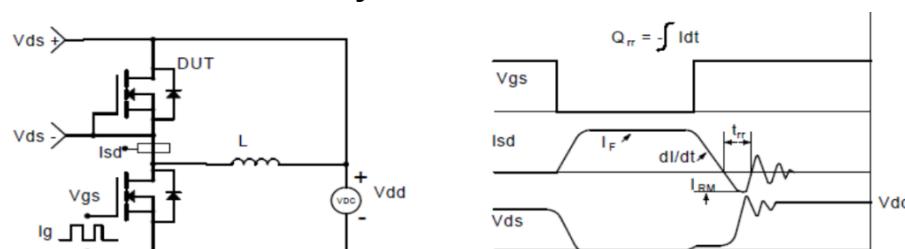
Avalanche Test Circuit and Waveforms



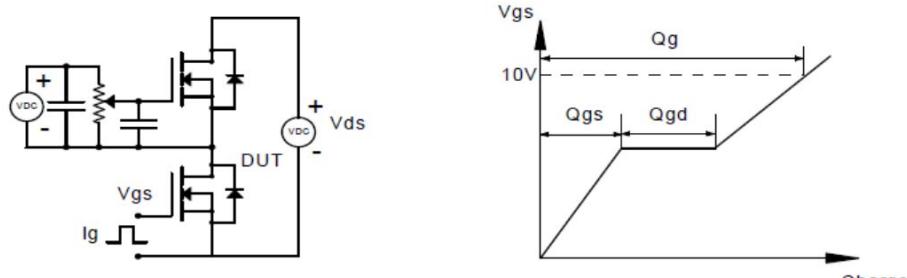
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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