

Features

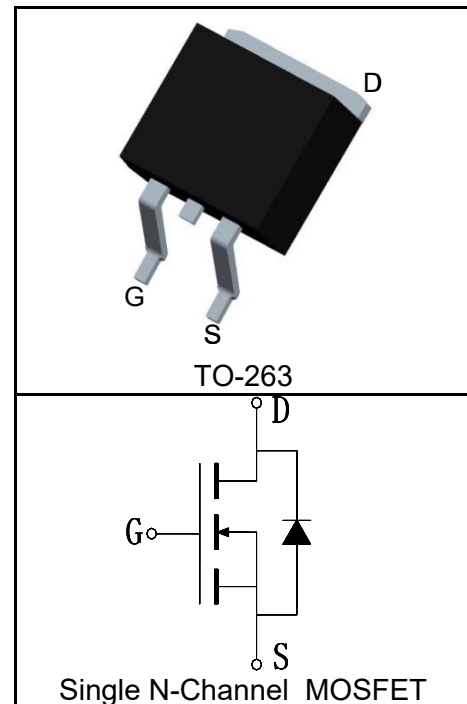
- 80V/93A,
 $R_{DS(ON)} = 6.2m\Omega(Typ.)@V_{GS}=10V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged
- 100% Avalanche Tested

Applications

- Power Switching Appliaction
- Load Switching



Pin Description



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		80	V
V _{GSS}	Gate-Source Voltage		±20	
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°C	93	A
Mounted on Large Heat Sink				
I _{DP} ^①	300μs Pulse Drain Current Tested	T _C =25°C	372	A
I _D ^②	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	93	A
		T _C =100°C	58	
P _D	Maximum Power Dissipation	T _C =25°C	125	W
		T _C =100°C	50	
R _{θJC}	Thermal Resistance-Junction to Case		1	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient		62.5	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^④	Avalanche Energy, Single Pulsed		625	mJ

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

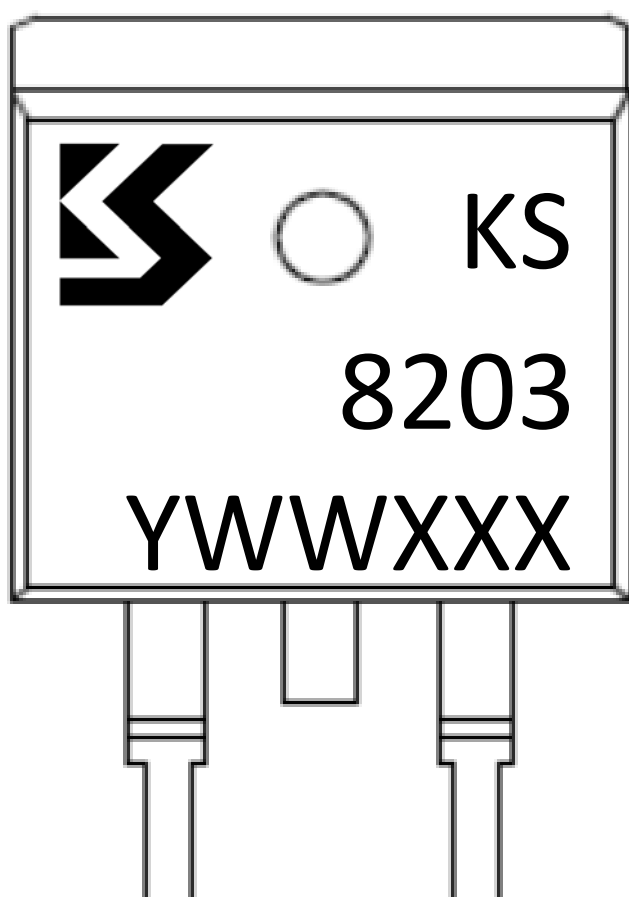
Symbol	Parameter	Test Condition	KS8203GA			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	80	85		V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =75V, V _{GS} =0V			1	μA
			T _J =125°C			
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2		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} =40A		6.2	7.5	mΩ
Diode Characteristics						
V _{SD} ^⑤	Diode Forward Voltage	I _{SD} =40A, V _{GS} =0V		0.87	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =40A, dI _{SD} /dt=100A/μs		41		ns
Q _{rr}	Reverse Recovery Charge			86		nC
Dynamic Characteristics ^⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		2.4		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V, Frequency=1.0MHz		5050		pF
C _{oss}	Output Capacitance			440		
C _{rss}	Reverse Transfer Capacitance			145		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω		23		ns
t _r	Turn-on Rise Time			51		
t _{d(OFF)}	Turn-off Delay Time			66		
t _f	Turn-off Fall Time			23		
Gate Charge Characteristics ^⑥						
Q _g	Total Gate Charge	V _{DS} =60V, V _{GS} =10V, I _{DS} =40A		115		nC
Q _{gs}	Gate-Source Charge			20		
Q _{gd}	Gate-Drain Charge			50		

Notes:

- ① Pulse width limited by safe operating area.
- ② Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 75A.
- 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} , $I_{AS}=50A$, $L=0.5\text{mH}$, $V_{DD}=48V$, $R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$.
- 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
KS8203GA	TO-263	Tape&Reel	800	13"	24mm

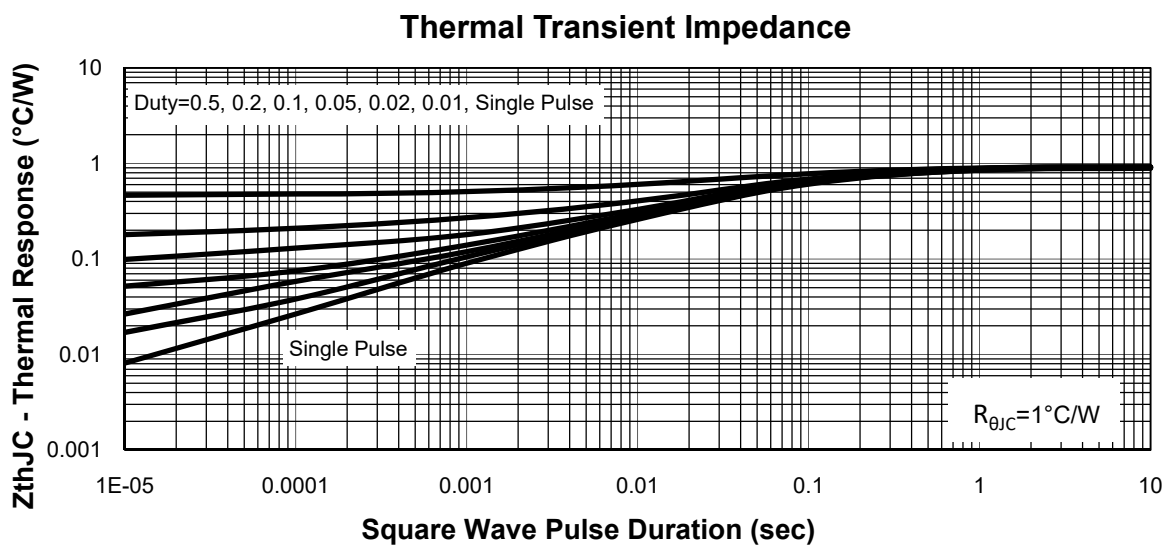
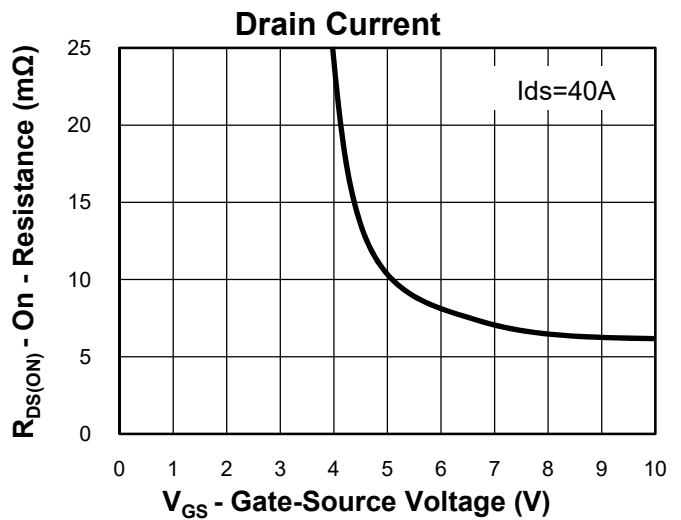
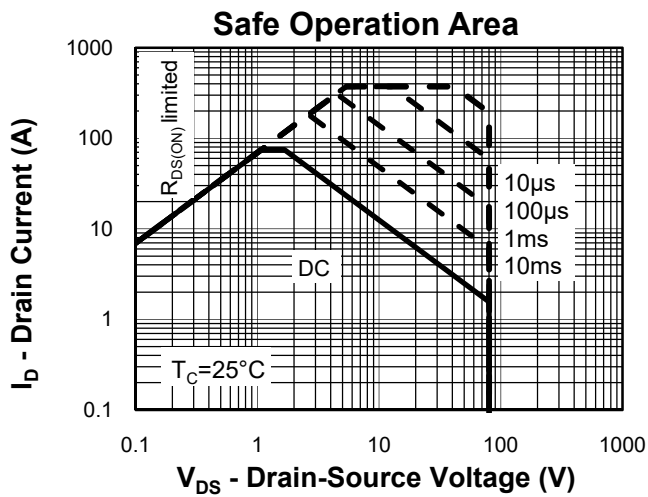
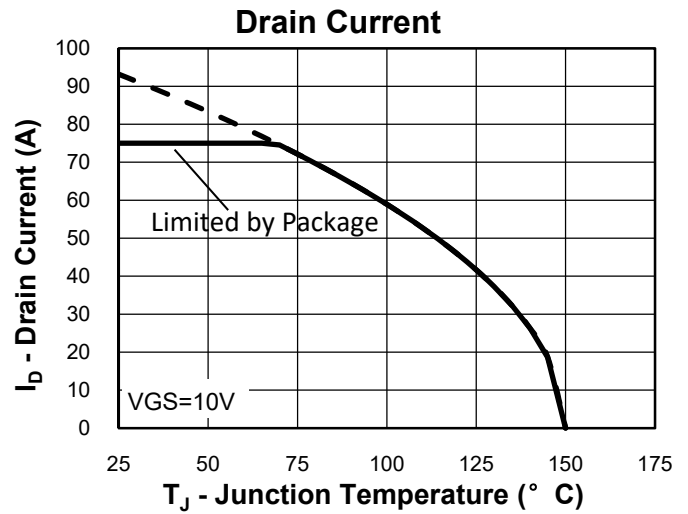
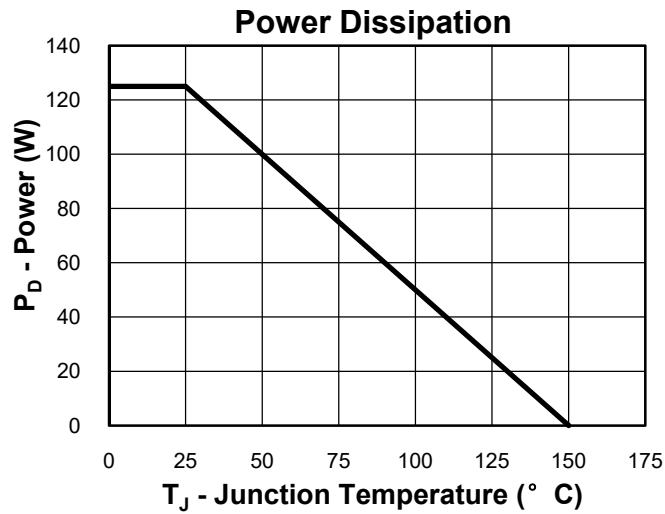


Y =Year,2017-A,2018-B,etc.

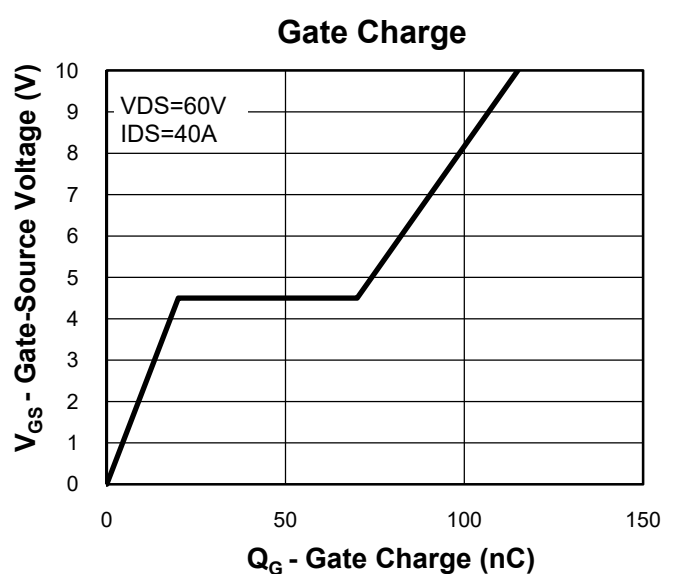
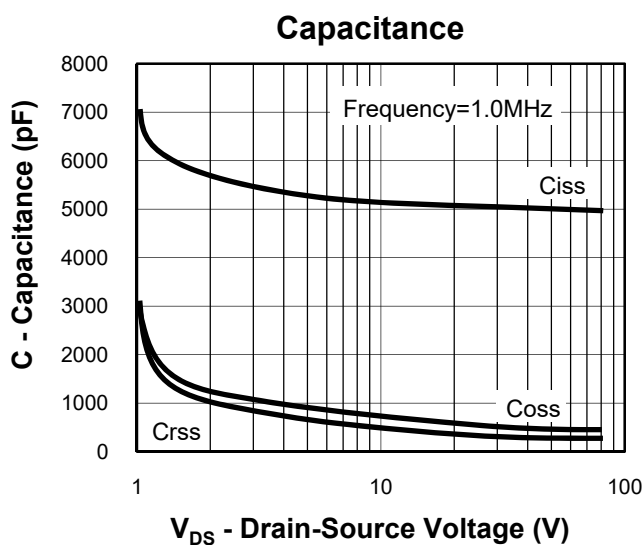
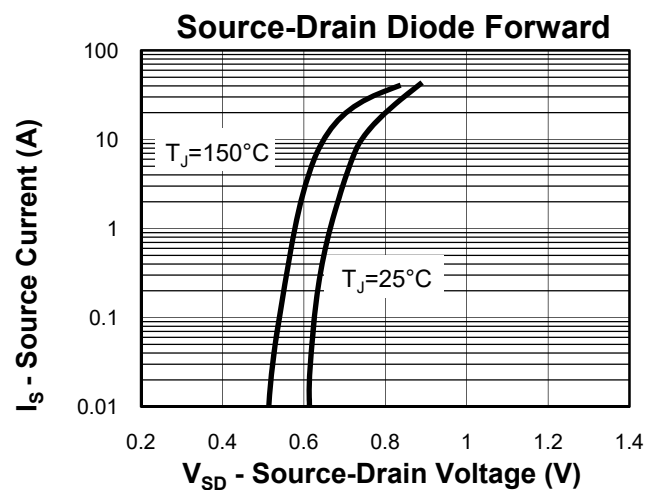
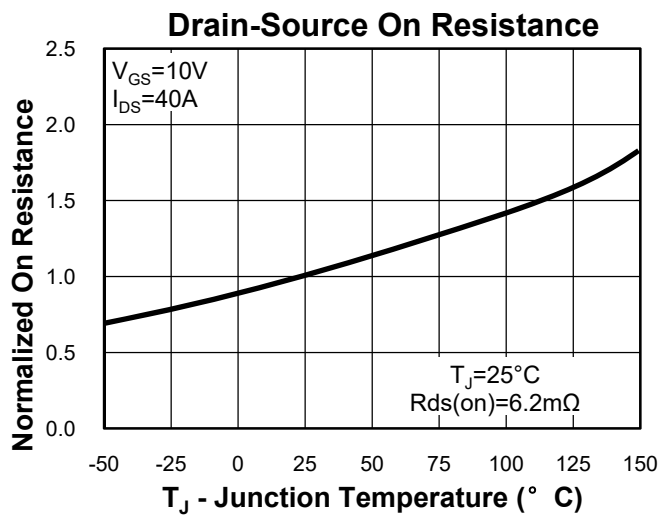
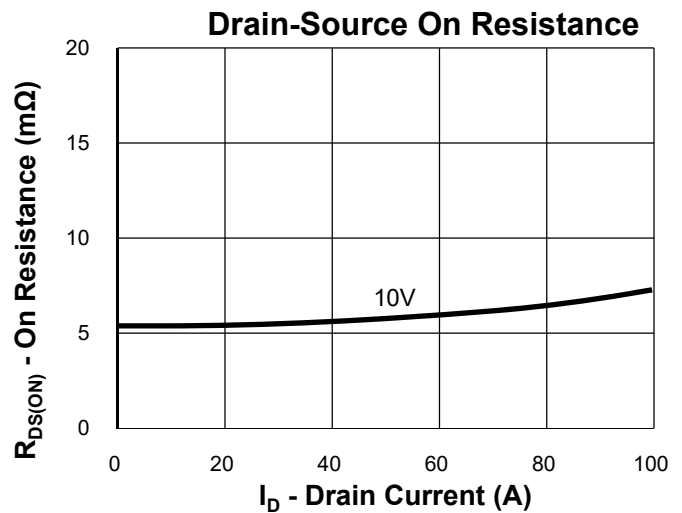
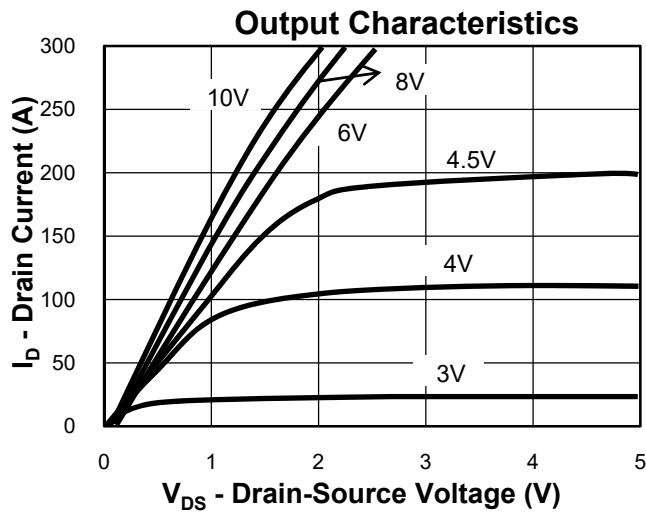
WW =Week.

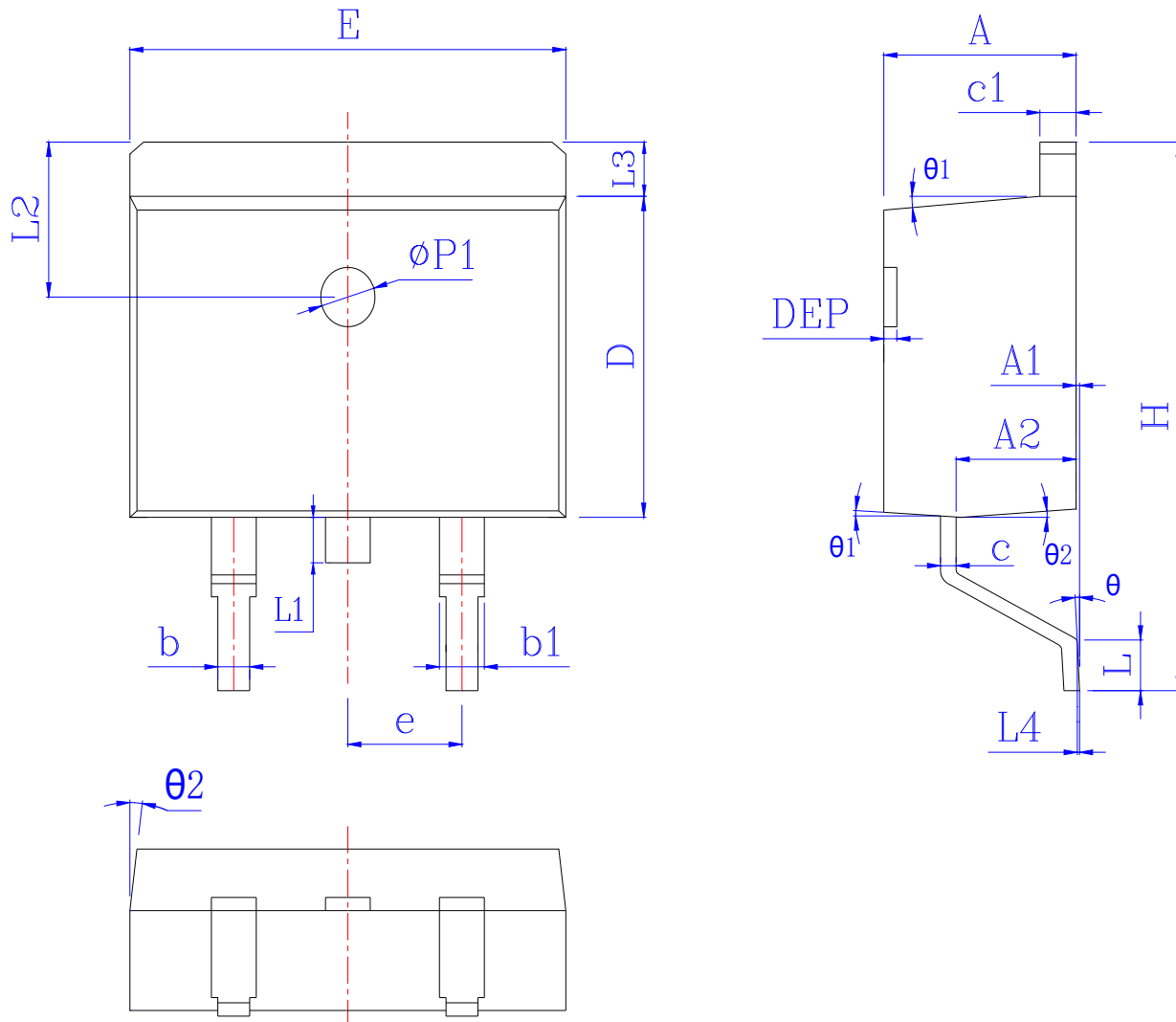
XXX =Lot number.

Typical Characteristics



Typical Characteristics



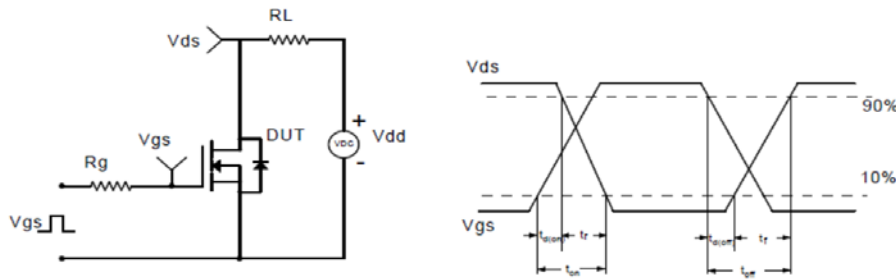
Package Information
TO-263


SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.55	4.72	0.173	0.179	0.186	L	1.94	2.30	2.60	0.076	0.091	0.102
A1	0.00	0.10	0.25	0.000	0.005	0.010	L3	1.17	1.29	1.40	0.046	0.051	0.055
A2	2.59	2.69	2.79	0.102	0.106	0.110	L1	*	*	1.70	*	*	0.067
b	0.76	*	0.90	0.030	*	0.035	L4	0.25 BSC			0.01 BSC		
b1	1.22	*	1.36	0.048	*	0.054	L2	2.50 REF			0.098 REF		
c	0.33	*	0.47	0.013	*	0.019	θ	0°	*	8°	0°	*	8°
c1	1.22	*	1.32	0.048	*	0.052	$\theta1$	5°	7°	9°	5°	7°	9°
D	8.60	*	9.29	0.339	*	0.366	$\theta2$	1°	3°	5°	1°	3°	5°
E	9.95	*	10.26	0.392	*	0.404	DEP	0.05	0.10	0.20	0.002	0.004	0.008
e	2.54BSC			0.100BSC			$\Phi p1$	1.40	1.50	1.60	0.055	0.059	0.063
H	14.70	15.10	15.79	0.579	0.594	0.622							

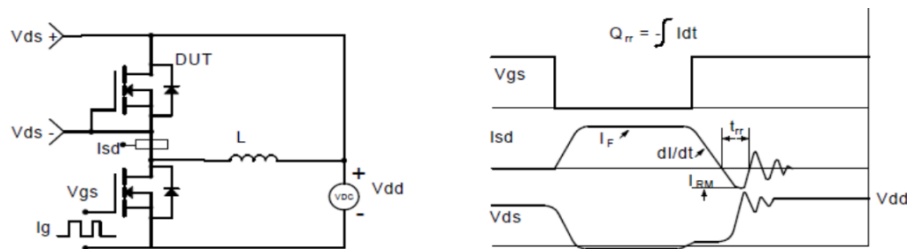
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

Kwansemi Semiconductor Co.,Ltd

Email:Sales@kwansemi.com

Web:www.kwansemi.com

DISCLAIMER:

Kwansemi reserves the right to change the specifications and circuitry without notice at any time. The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. Seller's customers using or selling Seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.