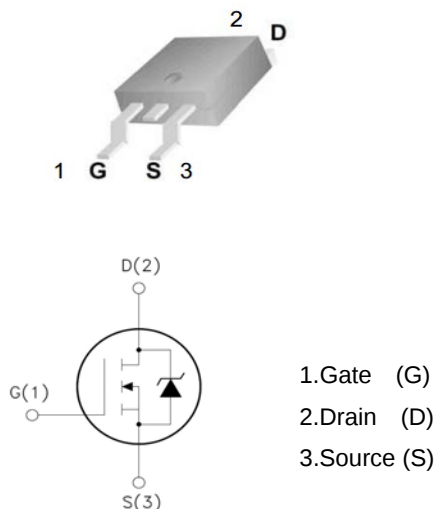


XXW73N10G

Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 168nC (Typ.).
- ☐ VDSS=100V, ID=73A
- ☐ RDS(on) : 9.5 mΩ (Max) @VG=10V
- ☐ 100% Avalanche Tested

TO-263



Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{DSS}	Drain-Source Voltage	100	V
I _D	Drain Current	T _j =25°C	A
		T _j =100°C	
V _{GSS}	Gate - Source voltage	±25	V
E _{AS}	Single Pulse Avalanche Energy (note1)	400	mJ
I _{AR}	Avalanche Current (note2)	73	A
P _D	Power Dissipation (T _j =25°C)	280	W
T _j	Junction Temperature(Max)	150	°C
T _{stg}	Storage Temperature	-55~+150	°C
TL	Maximum lead temperature for soldering purpose, 1/8" from case for 5 seconds	260	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R _{θJC}	Thermal Resistance, Junction to Case	-	0.45	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	-	91	°C/W

Electrical Characteristics (Ta=25°C unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0	100	-	-	V
ΔBVDSS/ΔT _J	Breakdown Voltage Temperature Coefficient	I _D =250μA ,Reference to 25℃	-	0.073	-	V/℃
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V	-	-	1	μA
		V _{GS} =100V, T _j =125℃			100	
I _{GSSF}	Gate-body leakage Current, Forward	V _{GS} =+25V, V _{DS} =0V	-	-	100	nA
I _{GSSR}	Gate-body leakage Current, Reverse	V _{GS} =-25V, V _{DS} =0V	-	-	-100	
On Characteristics						
V _{GS(TH)}	Date Threshold Voltage	I _D =250μA,V _{DS} =V _{GS}	2	-	4	V
R _{DS(ON)}	Static Drain-Source On-Resistance	I _D =35A,V _{GS} =10V	-	9.0	9.5	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	V _{DS} =50V, V _{GS} =0, f=1.0MHz	-	7431	13376	pF
Coss	Output Capacitance		-	617	-	
Crss	Reverse Transfer Capacitance		-	254	-	
Switching Characteristics						
Td(on)	Turn-On Delay Time	V _{DD} =10V, I _D =35A R _G =2.7Ω	-	27	-	nS
Tr	Turn-On Rise Time		-	97	-	
Td(off)	Turn-Off Delay Time		-	84	-	
Tf	Turn-Off Rise Time		-	102	-	
Qg	Total Gate Charge	V _{DS} =50V,V _{GS} =10V, I _D =35A	-	168		nC
Qgs	Gate-Source Charge		-	43	-	
Qgd	Gate-Drain Charge		-	52	-	
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Max. Diode Forward Current	-	-	-	73	A
I _{SM}	Max. Pulsed Forward Current	-	-	-	292	
V _{SD}	Diode Forward Voltage	I _D = 35A	-		1.3	V
Trr	Reverse Recovery Time	I _S =35A,V _{GS} =0V diF/dt=100A/μs (Note3)	-	85	-	nS
Qrr	Reverse Recovery Charge		-	263	-	μC

Notes : 1, L=0.32mH, IAS=73A, VDD=50V, RG=25Ω, Starting T_J =25°C
 2, Repetitive Rating : Pulse width limited by maximum junction temperature
 3, Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
 4, Essentially Independent of Operating Temperature

Typical Characteristics

Fig 1: Output Characteristics

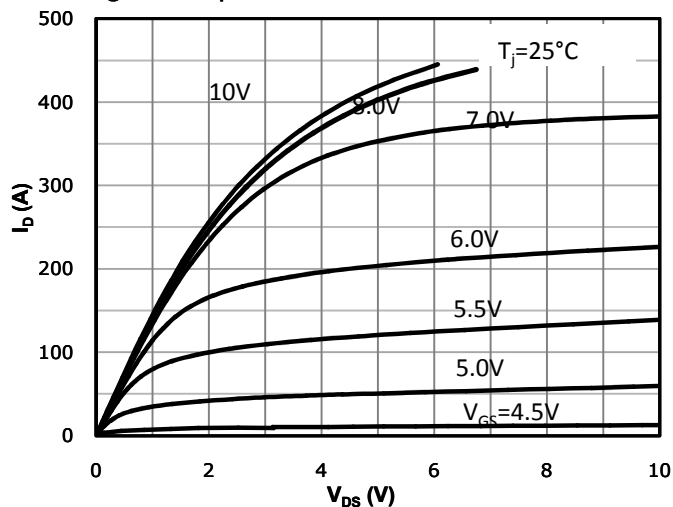


Fig 2: Transfer Characteristics

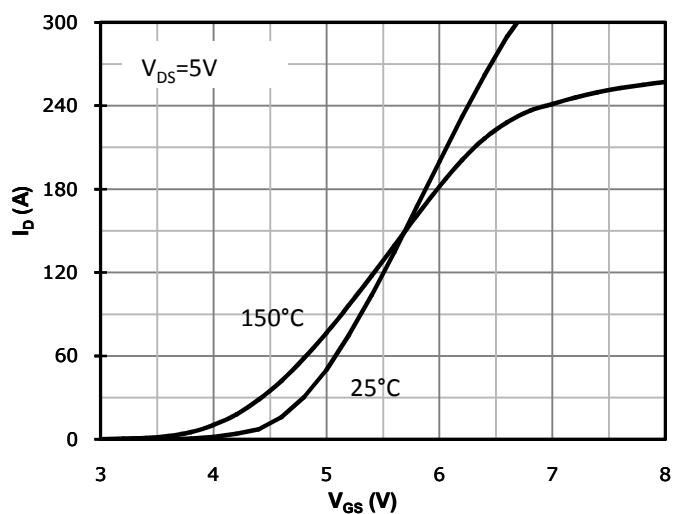


Fig 3: $R_{DS(on)}$ vs Drain Current and Gate Voltage

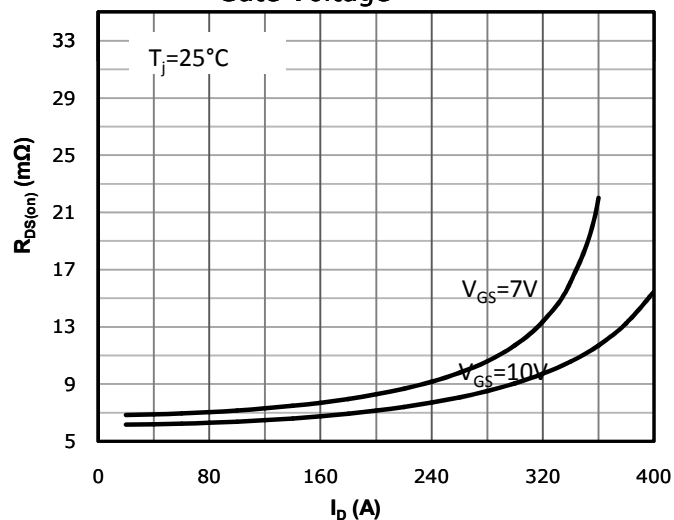


Fig 4: $R_{DS(on)}$ vs Gate Voltage

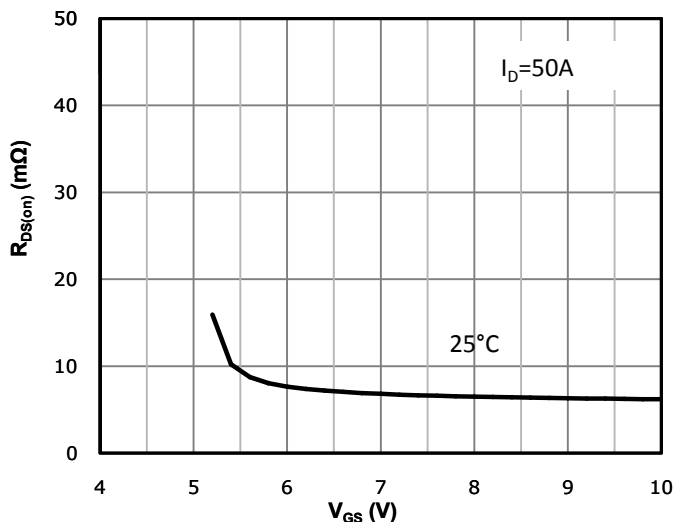


Fig 5: $R_{DS(on)}$ vs. Temperature

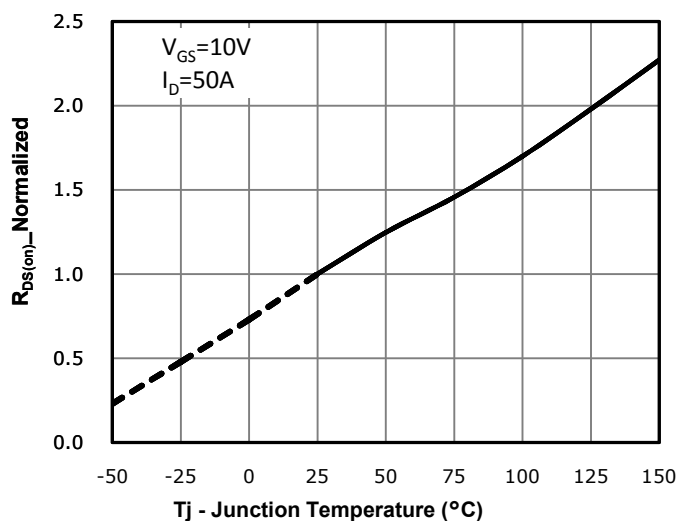
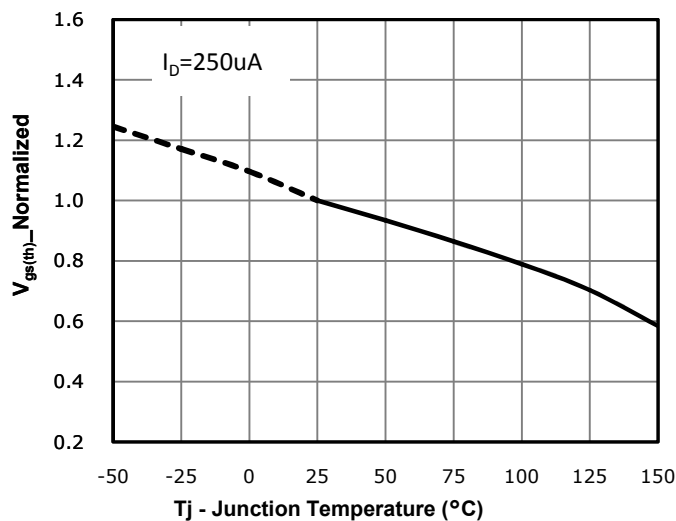


Fig 6: $V_{GS(th)}$ vs. Temperature



Typical Characteristics

Fig 7: Gate Charge Characteristics

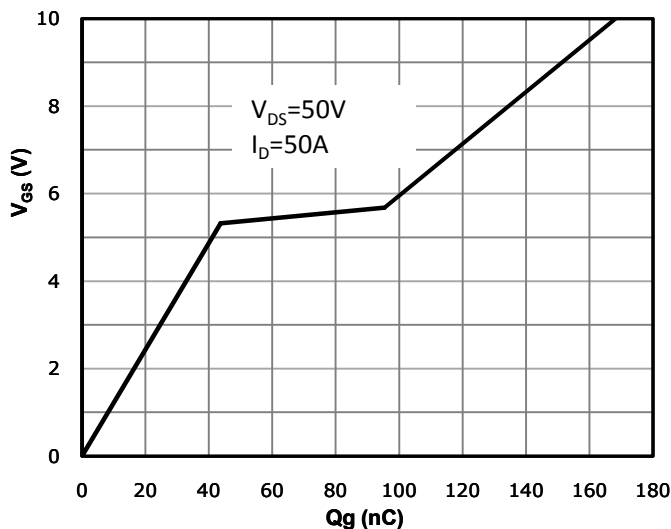


Fig 8: Capacitance Characteristics

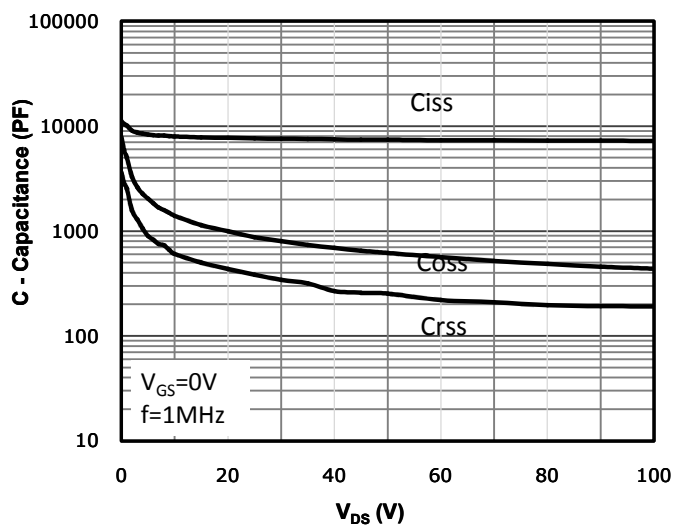


Fig 9: Body-diode Forward Characteristics

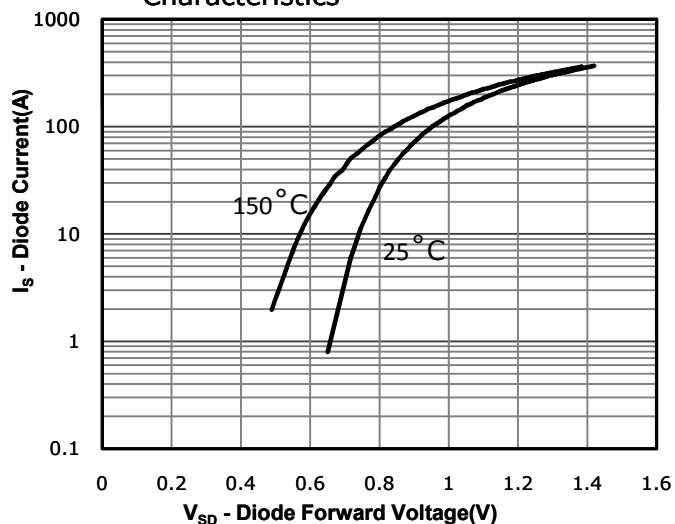


Fig 10: Power Dissipation

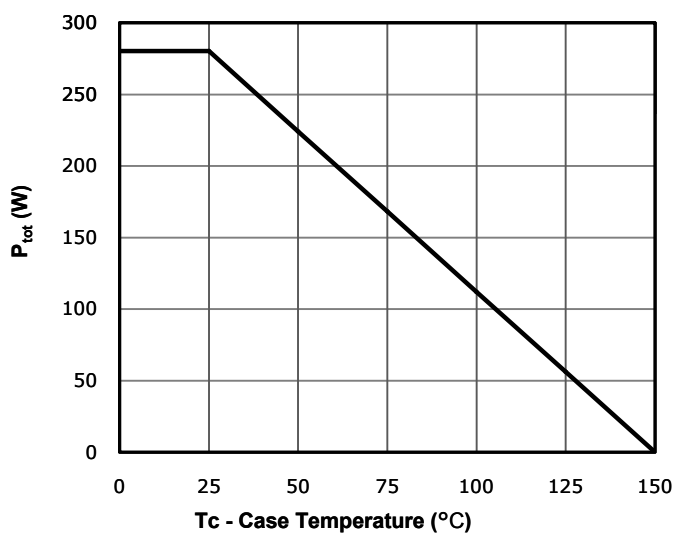


Fig 11: Drain Current Derating

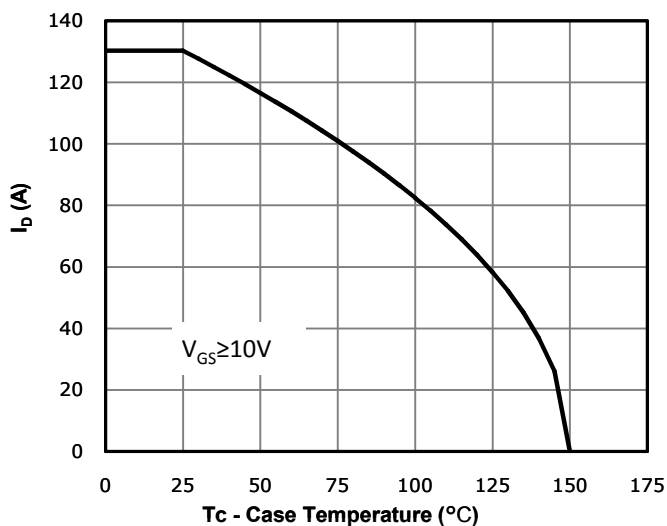
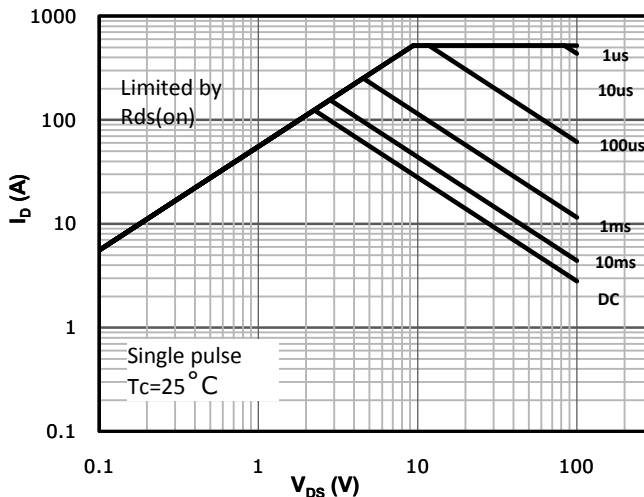
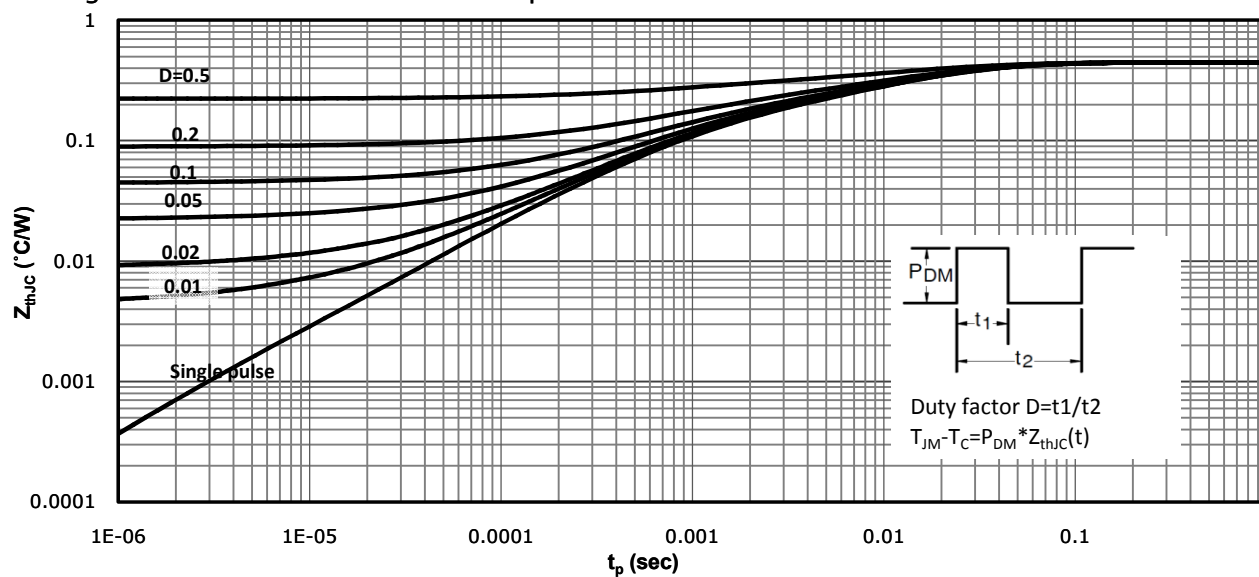


Fig 12: Safe Operating Area

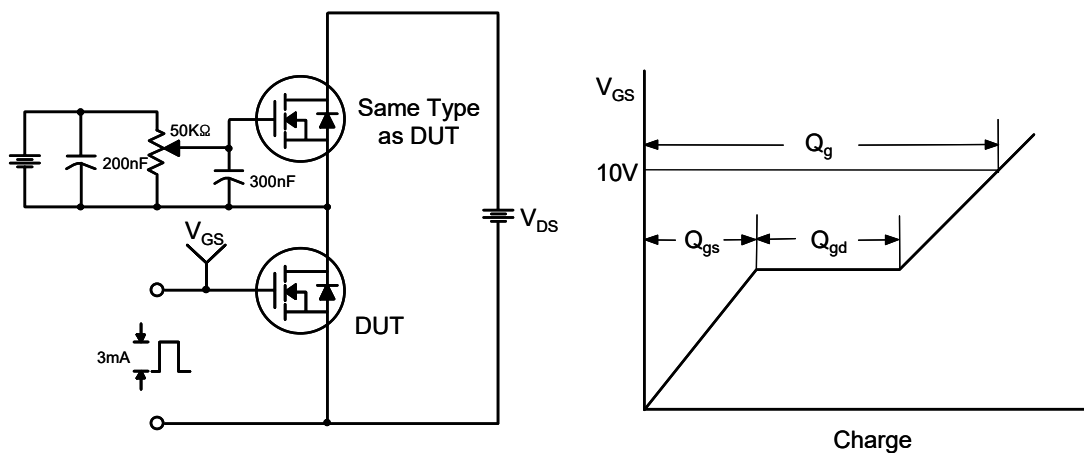


Typical Characteristics

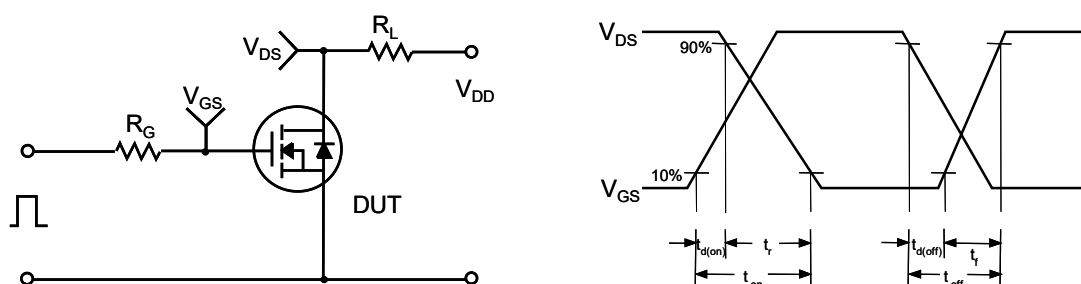
Fig 13: Max. Transient Thermal Impedance



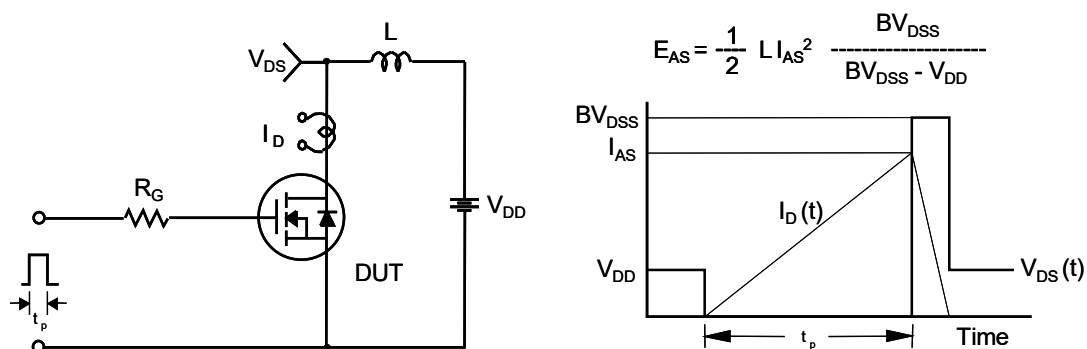
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

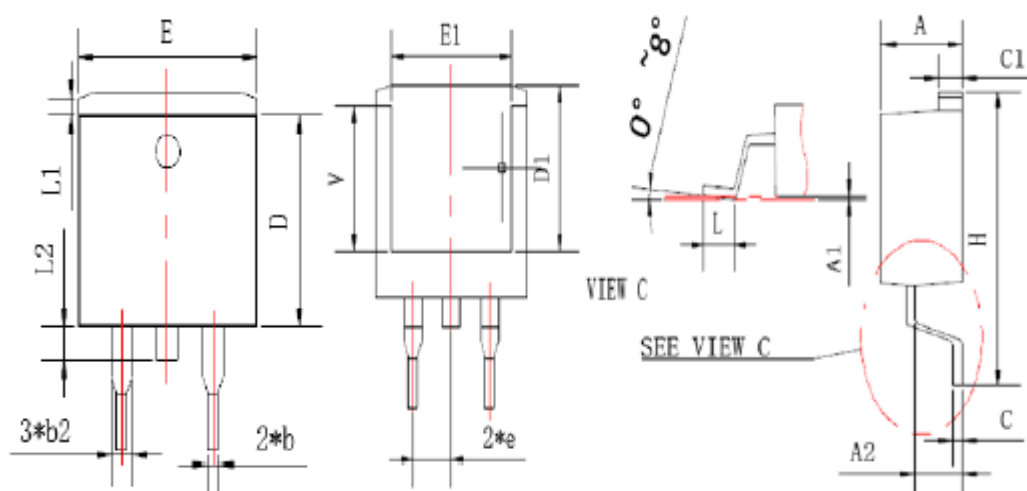


[illegible]

Package Dimension

TO-263

Unit:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.80	0.169	0.189
A1	0.00	0.25	0.000	0.010
A2	2.35	2.70	0.093	0.106
b	0.70	0.94	0.028	0.037
b2	1.15	1.35	0.045	0.053
C	0.35	0.65	0.014	0.026
C1	1.20	1.40	0.047	0.055
D	8.40	9.40	0.331	0.370
D1	7.80	8.10	0.307	0.319
e	2.540 Typ.		0.100 Typ.	
E	9.85	10.30	0.388	0.406
E1	7.00	8.50	0.276	0.335
H	15.00	15.70	0.591	0.618
L	2.30	2.80	0.091	0.110
L1	0.90	1.30	0.035	0.051
V	6.700Ref.		0.264Ref	
L2	1.00	1.50	0.039	0.059