

Description

Features

- Trench LV MOSFET technology
- Fast switching
- Improved dv/dt capability

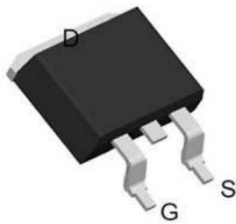
Application

- Power switching application
- UPS
- Battery Management

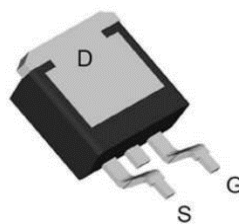
V_{DS}	60	V
$R_{ds(on),typ}@V_{gs}=10V$	5.3	m Ω
I_D	80	A



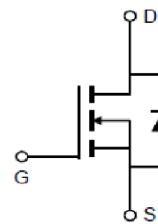
Top View



Bottom View



Pin Configuration



Package Marking and Ordering Information

Part	Marking	Package	Packing	Reel Size	Tape Width	Qty
CMT6080G	T6080G	TO263	Reel	NA	NA	800pcs

Key Performance Parameters

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_c=25^\circ C$	Continuous Drain Current, $V_{GS}=10V$	80	A
$I_D@T_c=100^\circ C$	Continuous Drain Current, $V_{GS}=10V$	50	A
I_{DM}	Pulsed Drain Current ¹	320	A
EAS	Single Pulse Avalanche Energy ⁴	380	mJ
$PD@T_c=25^\circ C$	Total Power Dissipation	78	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_j	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ	Max	Units
R _{θJA}	Thermal Resistance Junction-Ambient	28	32	°C/W
R _{θJC}	Thermal Resistance Junction-Case	1.45	1.6	°C/W

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
BVDSS	Drain-Source Breakdown Voltage	60	--	--	V	V _{GS} =0V, I _D =250uA
RDS(ON)	Static Drain-Source On-Resistance	--	5.3	7	mΩ	V _{GS} =10V, I _D =30A
VGS(th)	Gate Threshold Voltage	2	2.7	4	V	V _{GS} =V _{DS} , I _D =250uA
IDSS	Drain-Source Leakage Current	--	--	1	uA	V _{DS} =60V, V _{GS} =0V, T _J =25°C
		--	--	10	uA	V _{DS} =48V, V _{GS} =0V, T _J =125°C
IGSS	Gate-Source Leakage Current	--	--	±100	nA	V _{GS} =±20V, V _{DS} =0V
gfs	Forward Transconductance	--	49	--	S	V _{DS} =10V, I _D =30A
Rg	Gate Resistance	--	3	--	Ω	V _{DS} =0V, V _{GS} =0V, f=1MHz
Qg	Total Gate Charge (10V) ^{2,3}	--	75	--	nC	V _{DS} =30V, V _{GS} =10V, I _D =30A
Qgs	Gate-Source Charge ^{2,3}	--	18	--		
Qgd	Gate-Drain Charge ^{2,3}	--	25	--		
Td(on)	Turn-On Delay Time ^{2,3}	--	13	--	ns	V _{DD} =30V, V _{GS} =10V, R _G =3Ω I _D =30A
Tr	Rise Time ^{2,3}	--	46	--		
Td(off)	Turn-Off Delay Time ^{2,3}	--	81	--		
Tf	Fall Time ^{2,3}	--	41	--		
Ciss	Input Capacitance	--	3754	--	pF	V _{DS} =30V, V _{GS} =0V, f=1MHz
Coss	Output Capacitance	--	327	--		
Crss	Reverse Transfer Capacitance	--	232	--		

Diode Characteristics

Symbol	Parameter	Conditions	Typ	Max	Units
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	--	80	A
I _{sm}	Pulsed Source Current		--	320	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =5A, T _J =25°C		1.2	V

Note:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
3. Essentially independent of operating temperature.
4. The EAS data shows Max. rating. The test condition is V_{DD}=60V, V_{GS}=10V, L=1mH.

Typical Performance Characteristics

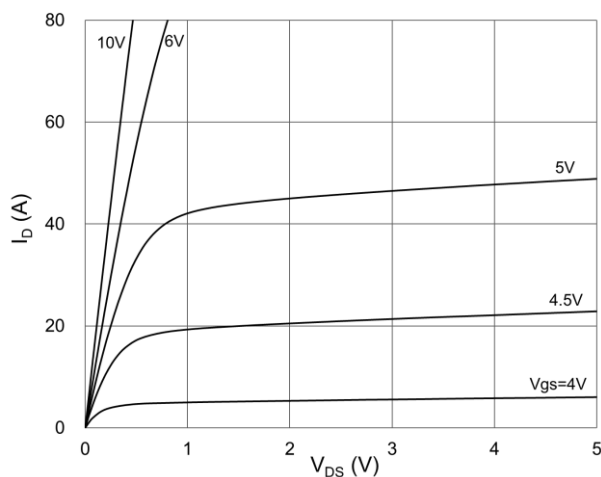
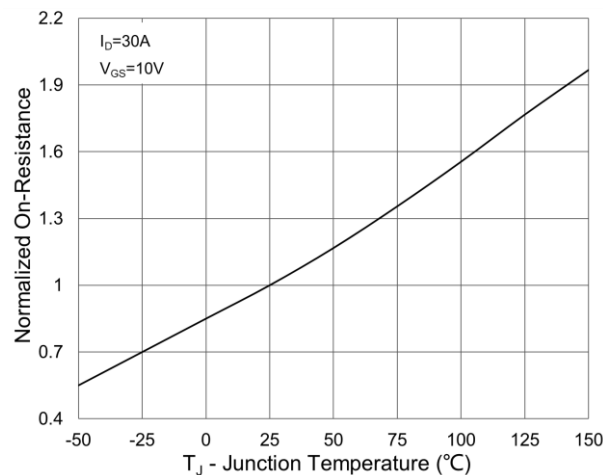
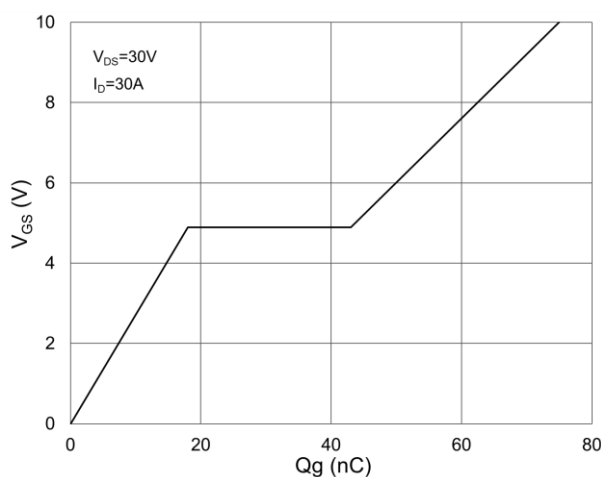
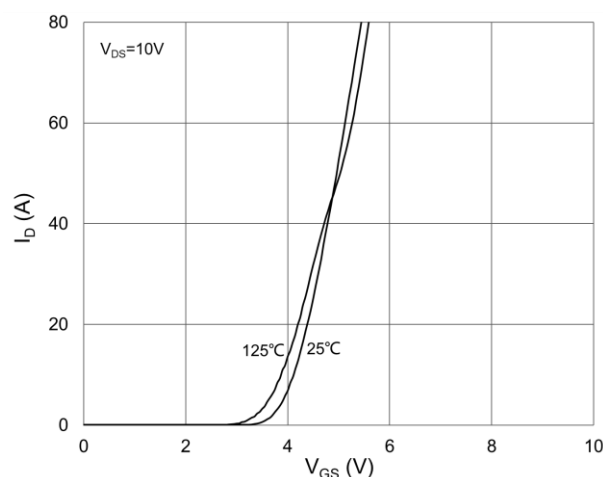
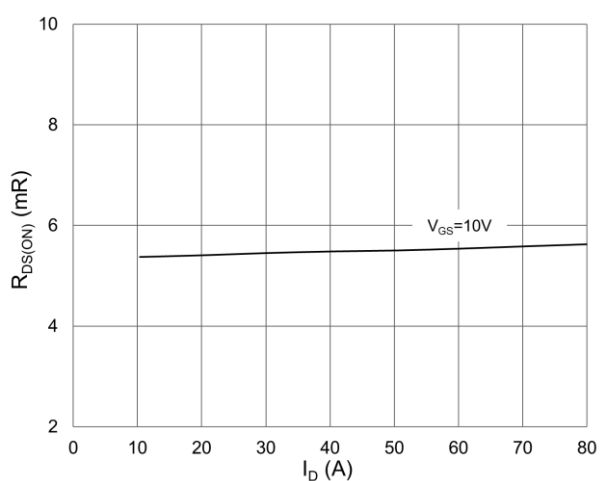
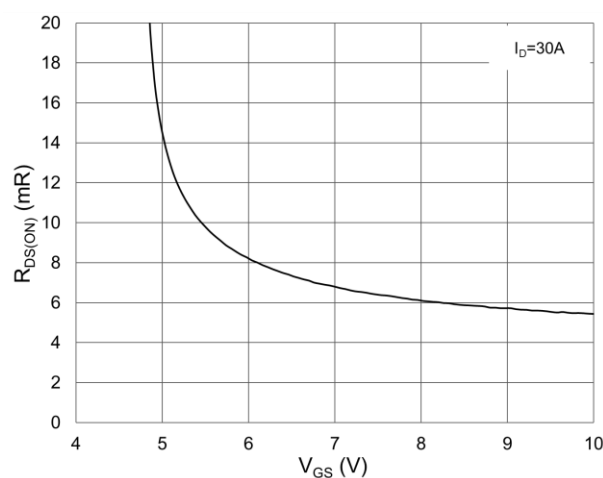
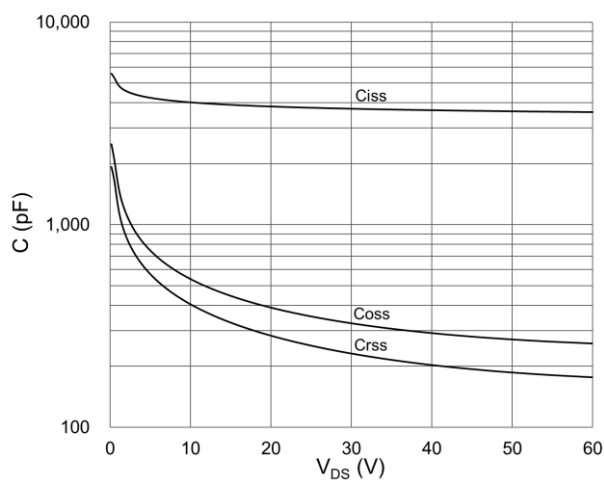
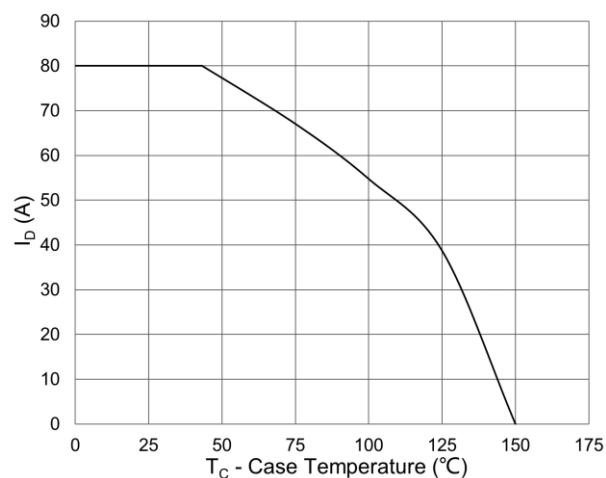
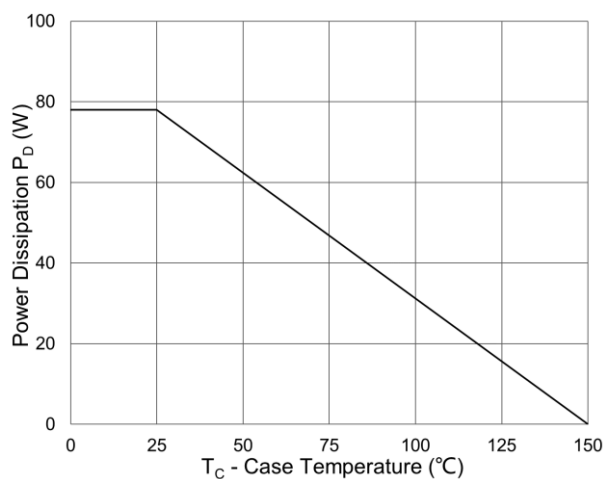
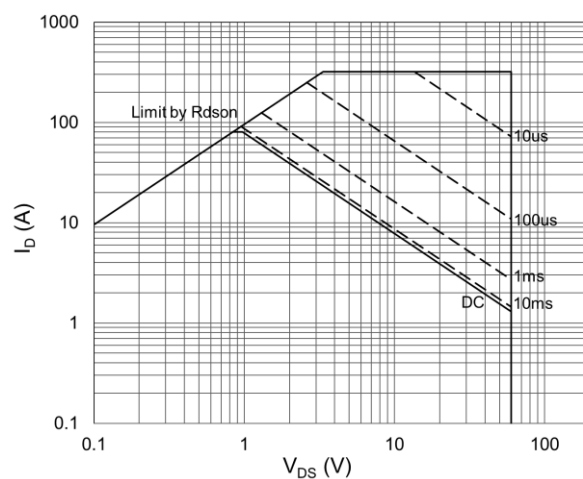
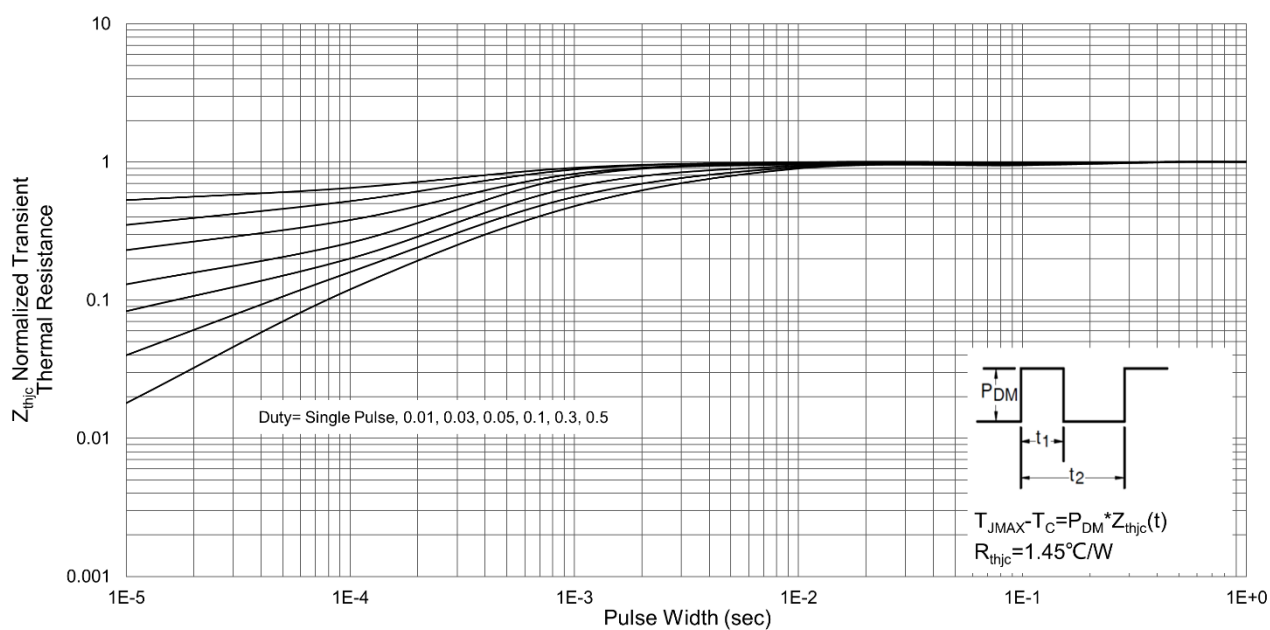
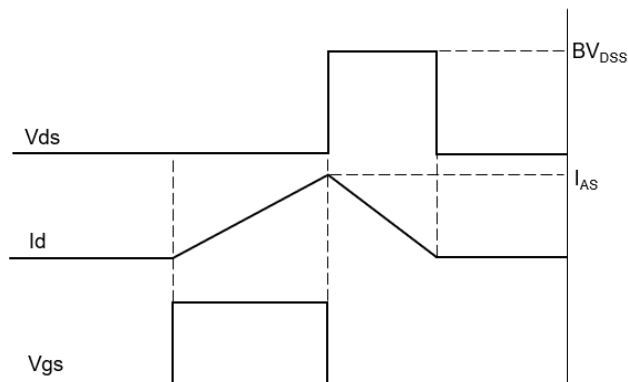
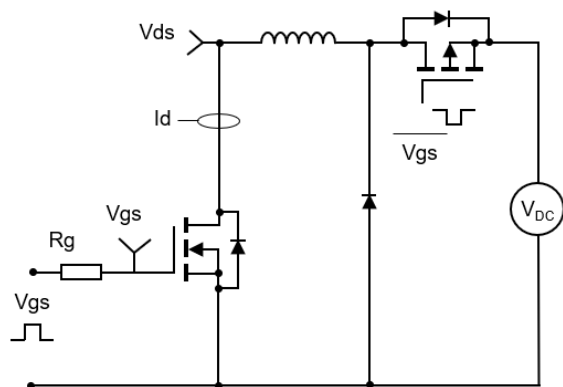
Fig1 Output Characteristics

Fig2 Normalized $R_{DS(on)}$ vs. T_J

Fig3 Gate Charge Waveform

Fig4 Transfer Characteristics

Fig5 $R_{DS(on)}$ vs. Drain Current and Gate Voltage

Fig6 $R_{DS(on)}$ vs. Gate Voltage


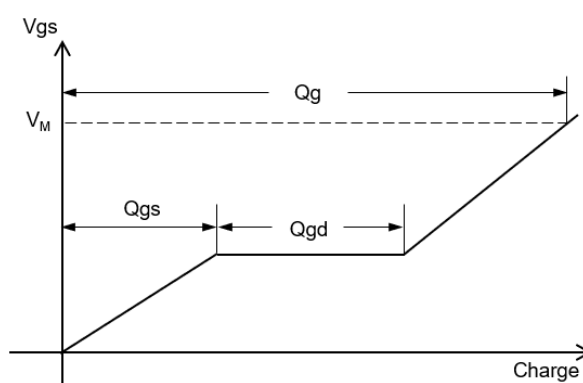
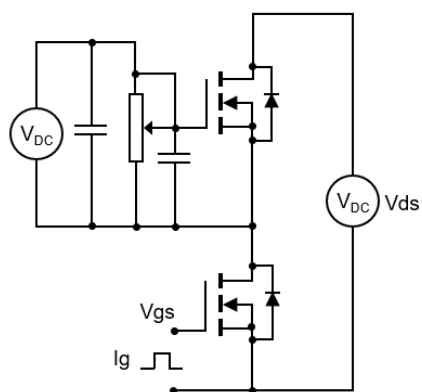
Fig7 Capacitance Characteristics

Fig8 Drain Current Derating

Fig9 Power Dissipation

Fig10 Maximum Safe Operation Area

Fig11 Normalized Transient Impedance


Test Circuit & Waveform

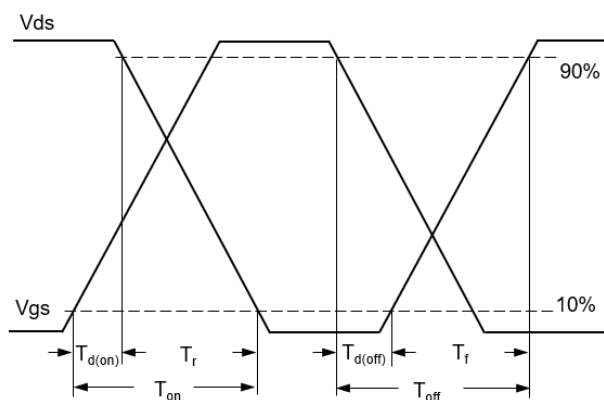
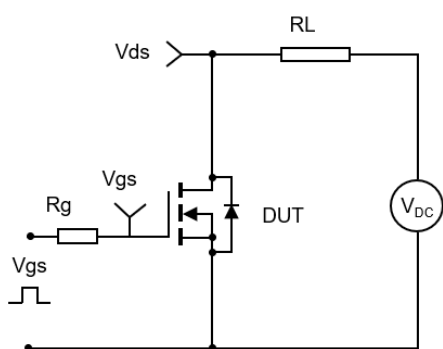
1. Unclamped Inductive Switching Test Circuit & Waveform



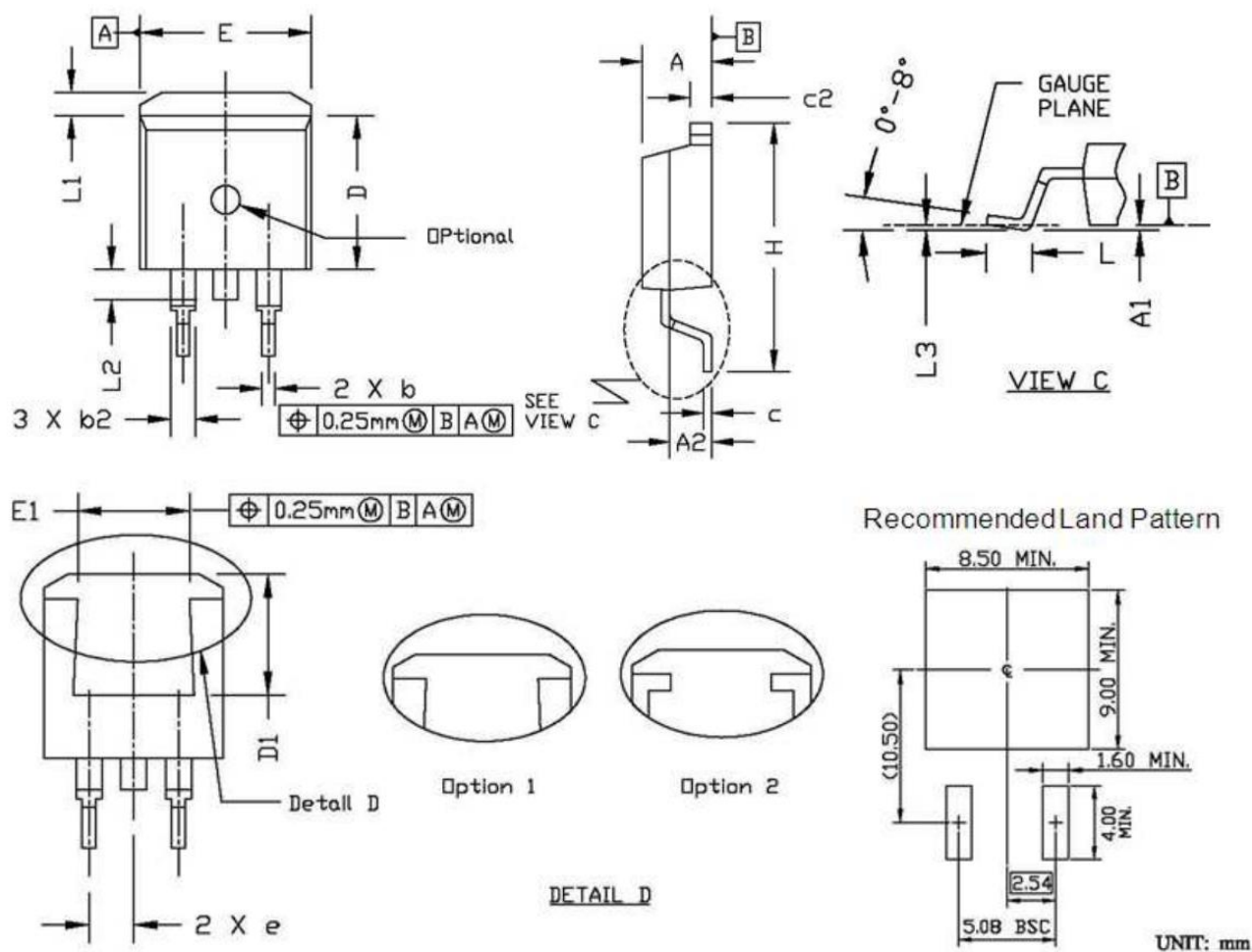
2. Gate Charge Test Circuit & Waveform



3. Resistive Switching Test Circuit & Waveform



TO263 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.86	0.169	0.191
A1	0.00	0.25	0.000	0.010
A2	2.34	2.79	0.092	0.110
b	0.68	0.94	0.027	0.037
b2	1.15	1.35	0.045	0.053
c	0.33	0.65	0.013	0.026
c2	1.17	1.40	0.046	0.055
D	8.38	9.45	0.330	0.372
D1	6.90	8.17	0.272	0.322
e	2.54 BSC.		0.100 BSC.	
E	9.78	10.50	0.385	0.413
E1	6.50	8.60	0.256	0.339
H	14.61	15.88	0.575	0.625
L	2.24	3.00	0.088	0.118
L1	0.70	1.60	0.028	0.063
L2	1.00	1.78	0.039	0.070
L3	0.00	0.25	0.000	0.010