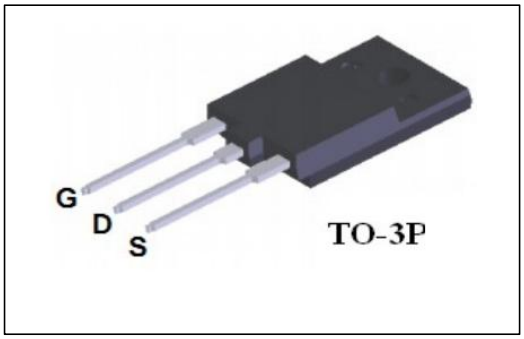
CHONGQING CLOUDCHILD TECHNOLOGY CO., LTD

TO-3P Plastic-Encapsulate MOSFETS

CCM03N150

N-Channel Power MOSFET

V_{DSS}	$R_{DS(ON)}$(Typ.)	I_D
1300 V	6Ω@10V	3A



DESCRIPTION

The CCM03N150 provides excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

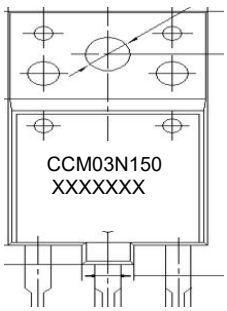
FEATURES

- Fast Switching
- Low ON Resistance
- Low Gate Charge Minimize Switching loss
- Fast Recovery Body Diode
- 100% Single Pulse avalanche energy Test
- AEC Q101 Qualified

APPLICATIONS

- SMPS Standby Power
- Adaptor
- Charger

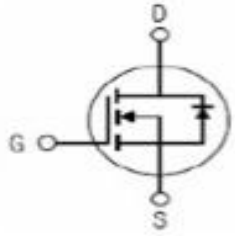
MARKING



CCM03N150 =Part No.

XXXXXXX = Code

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS(T_c=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	1300	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current Tc=25℃	I_D	3	A
Pulsed Drain Current [1]	I_{DM}	12	A
Single Pulse Avalanche Energy [2]	E_{AS}	31	mJ
Total Power Dissipation	P_D	156	W
Thermal Resistance from Junction to Case [3]	$R_{\theta JC}$	0.96	℃/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~ +175	℃
Soldering Temperature , for 10S(1.6mm from case)	-	260	℃

Notes:

1.Repetitive Rating: Pulse width limited by maximum junction temperature.

2.Start TJ = 25°C, L = 10mH , IAS = 2.5A, VGS =10V.

3.Water cooled heatsink, P_D adjusted for a peak junction temperature of 175℃.

MOSFET ELECTRICAL CHARACTERISTICS

TC=25℃ unless otherwise specified

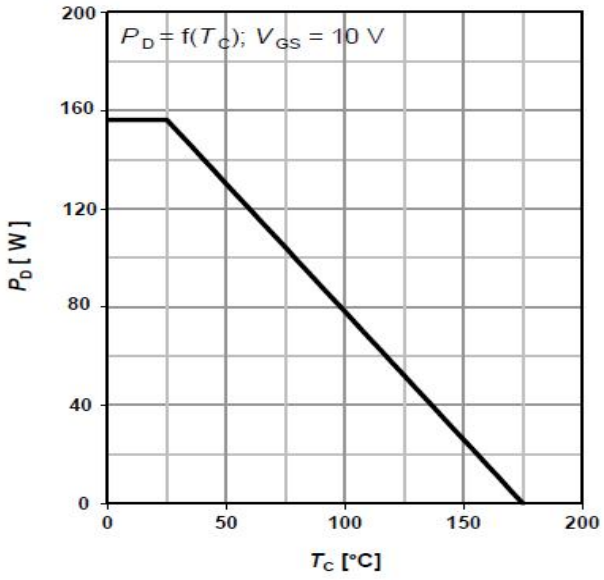
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	1300			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =1500V,V_{GS} = 0V,Ta=25℃			10	μA
		V_{DS} =1500V,V_{GS} = 0V,Ta=125℃			250	
Gate-body leakage current	I_{GSS}	V_{GS} =±30V, V_{DS} = 0V			±100	nA
On characteristics [1]						
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.5	3.7	4.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =1.5A		6	9	Ω
Transconductance	gfs	V_{DS}=15V, I_D=1.5A		3.8		S
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		862		pF
Output Capacitance	C_{oss}			61		
Reverse Transfer Capacitance	C_{rss}			7.2		
Gate resistance	R_g	V_{GS} = 0V,V_{DS}=0V,f=1MHz		4.2		Ω
Switching characteristics						
Total Gate Charge	Q_g	V_{DD}=750V , V_{GS}=10V , I_D=3A		19.7		nC
Gate-Source Charge	Q_{gs}			7.5		
Gate-Drain Charge	Q_{gd}			5.5		
Turn-on delay time	$t_{d(on)}$	V_{DD}=750V , V_{GS}=10V , I_D=3A， R_G=10Ω		15.1		ns
Turn-on rise time	t_r			19.4		
Turn-off delay time	$t_{d(off)}$			25.6		
Turn-off fall time	t_f			76.2		
Drain-source Diode characteristics [1]						
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_{SD}=3A , T_J=25℃			1.5	V
Continuous Source Current	I_S	Tc = 25 °C			3	A
Pulsed drain-source diode forward current	I_{SM}	—			12	A
Reverse recovery time	Trr	I_F=3A，di/dt=100A/us		526		ns
Reverse recovery charge	Qrr			2000		nC

Note :

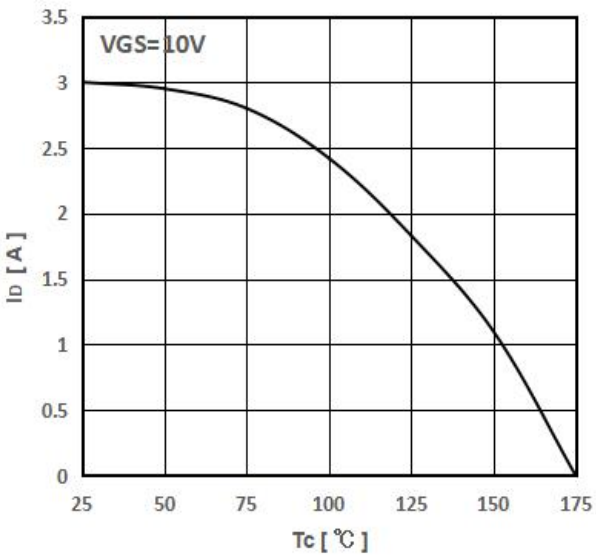
1. Pulse Width tp ≤ 380μs, δ ≤ 2%.

Typical Characteristics

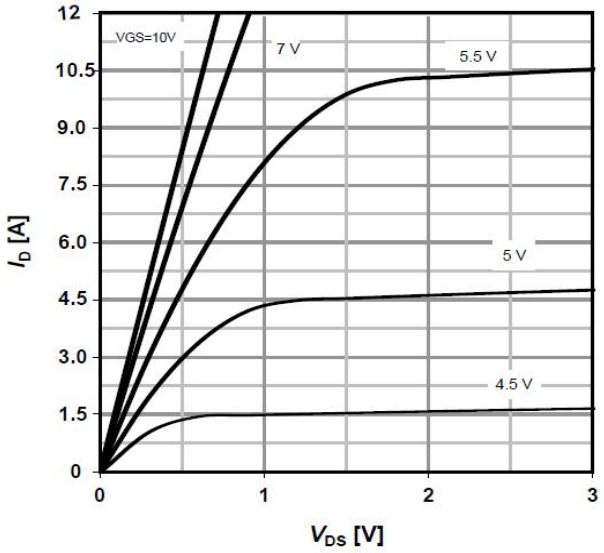
PD -- Tc



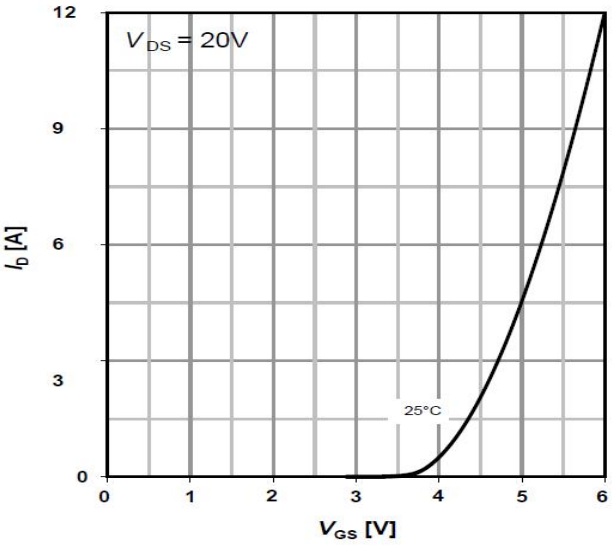
ID -- Tc



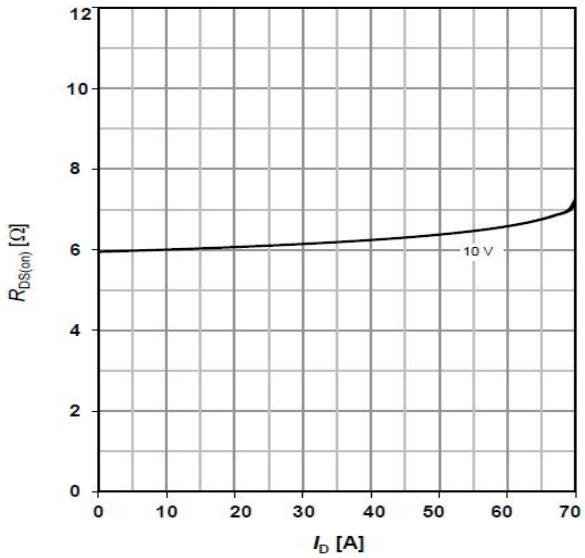
ID -- VDS



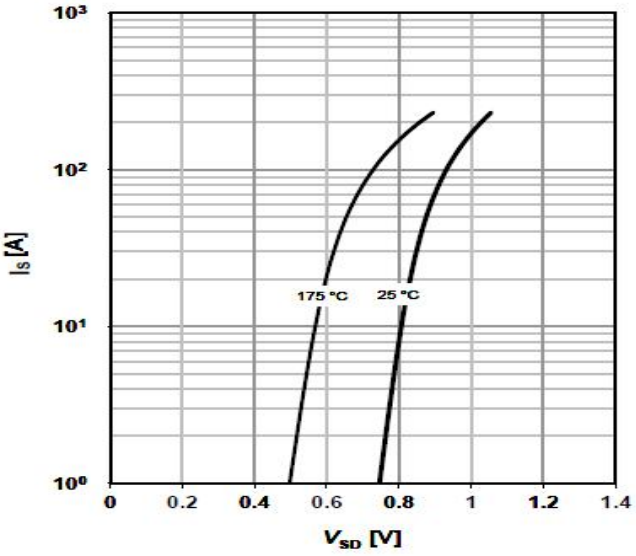
ID -- VGS



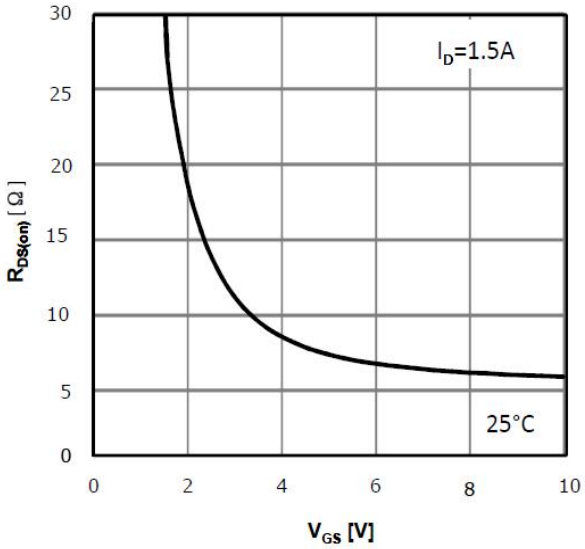
RDS(on) -- ID



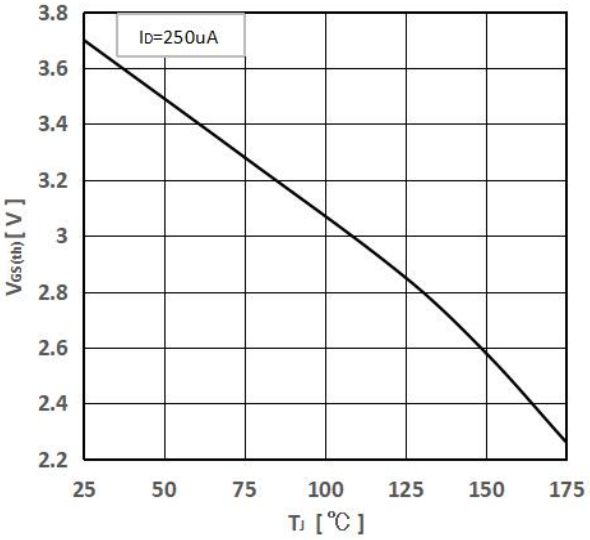
Is -- VSD



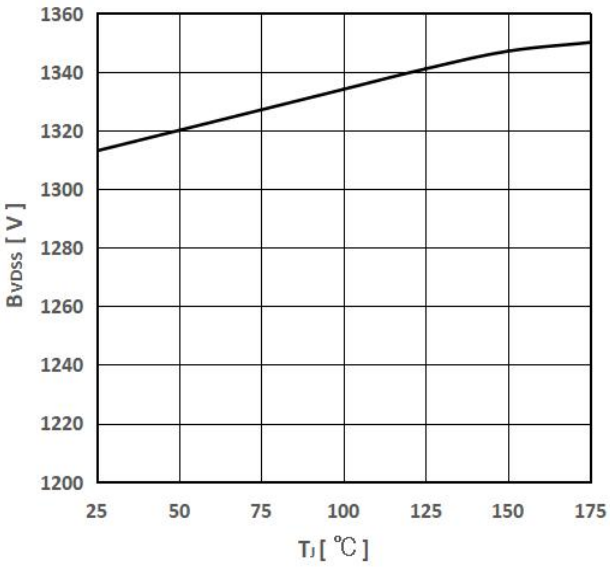
RDS(on) -- VGS



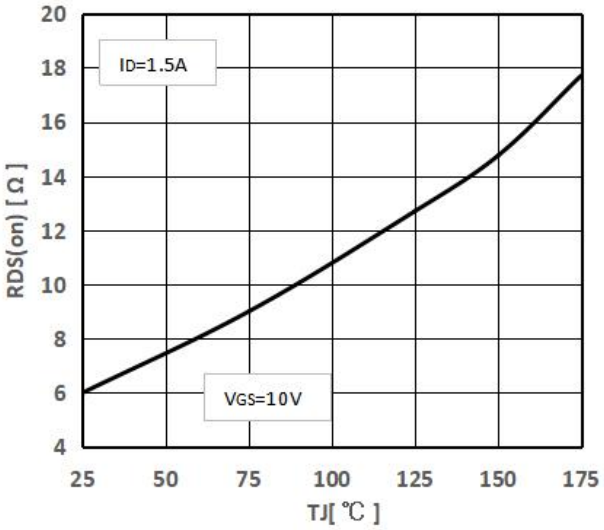
Threshold Voltage



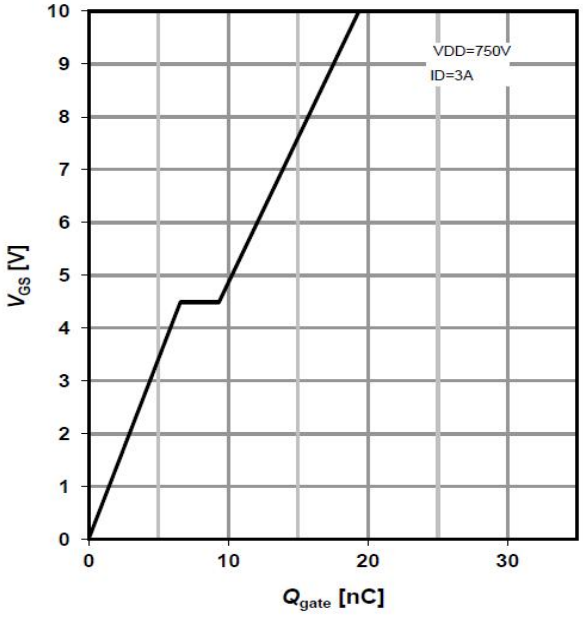
Drain-source breakdown voltage



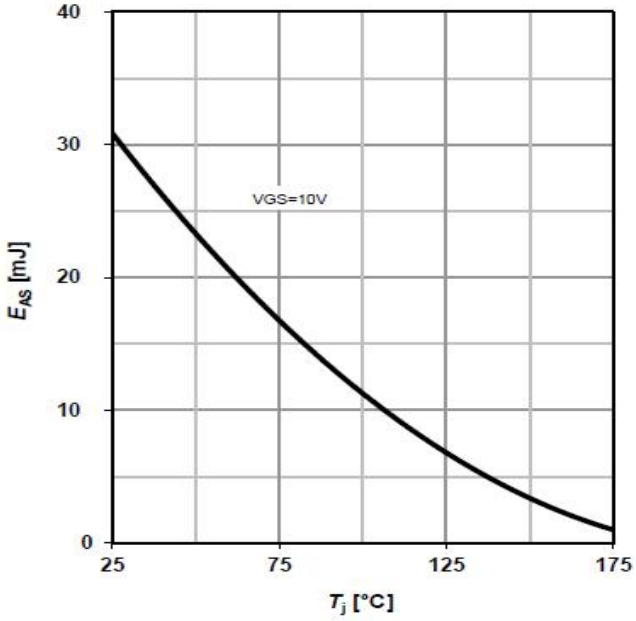
RDS（on） -- Tj



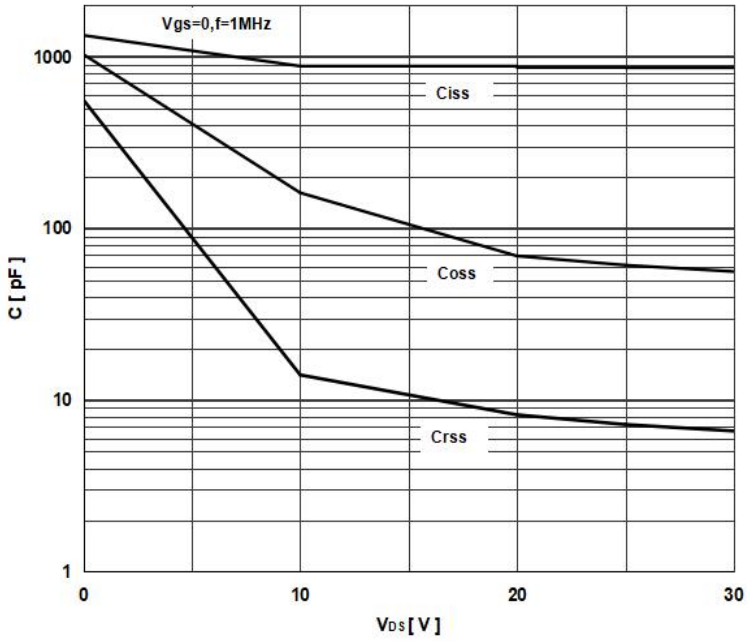
Typ.gate charge



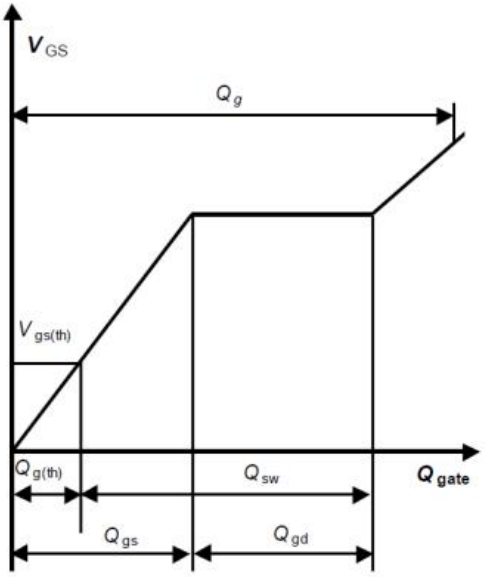
Avalanche energy



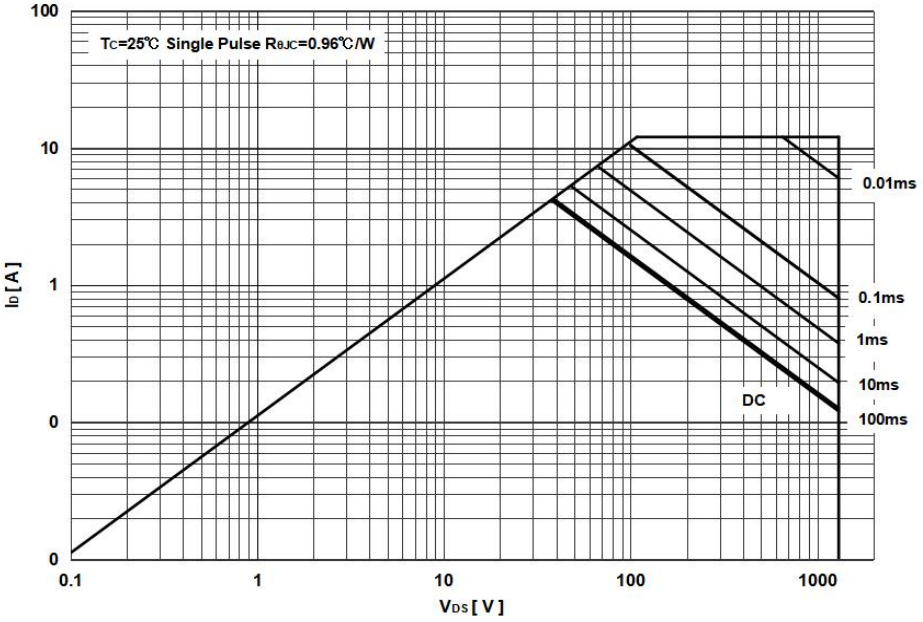
Typ.capacitance



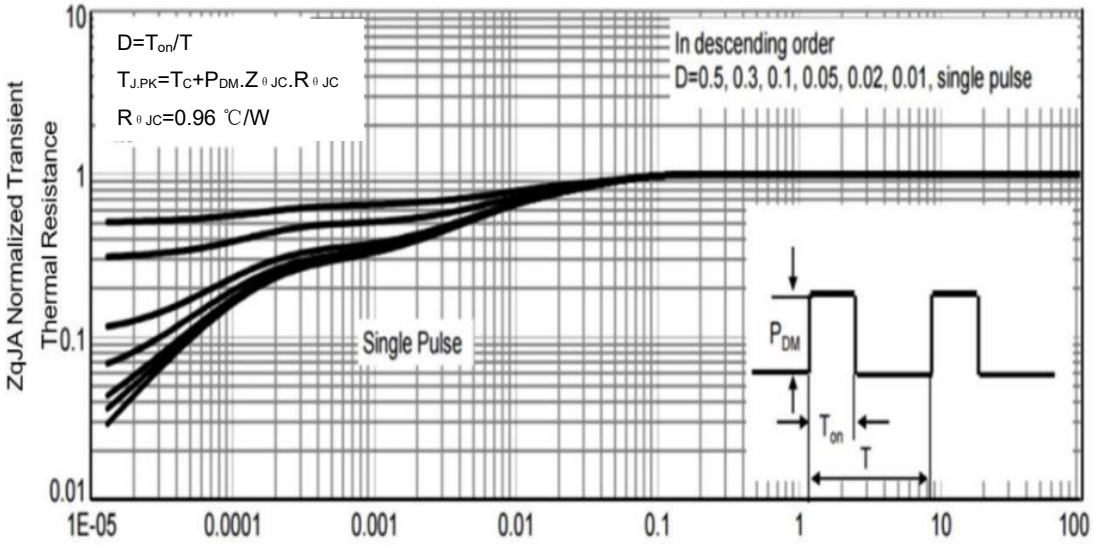
Gate charge waveforms



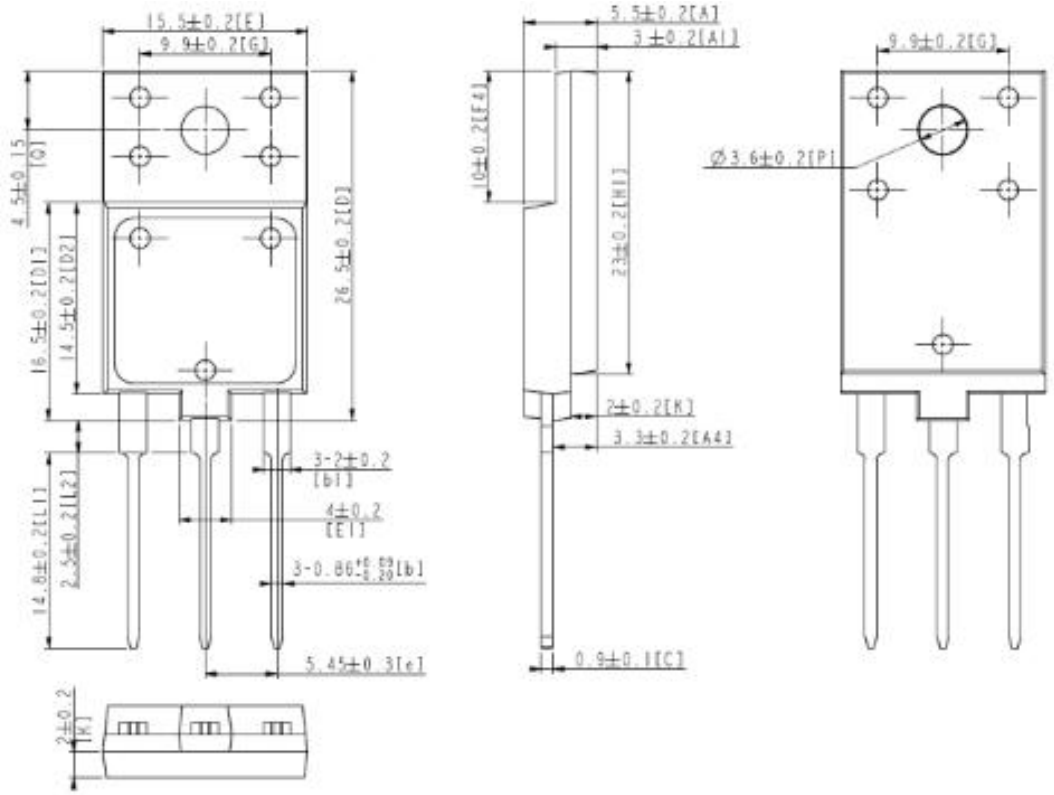
Maximum Forward Biased Safe Operating Area



Normalized Thermal Transient Impedance



TO-3P Package Outline Dimensions



TO-3P Tubing

Tubing	Box	Box Size(mm)	Carton	Carton Size(mm)
30pcs	360pcs	575*152*48	1800pcs	590*275*175

NOTICE

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Date of change	Rev #	revise content
2022/11/24	A/0	/