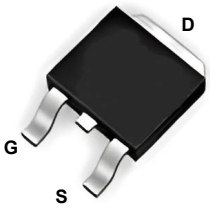
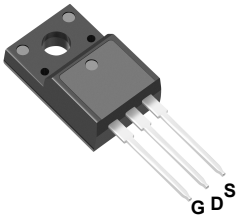
DESCRIPTION

The WTM07N50VD/F is a high voltage power MOSFET combines advanced planar MOSFET designed to have better characteristics, such as fast switching time, low gate charge, low on-state resistance and high rugged avalanche characteristics. This power MOSFET is usually used in high speed switching applications of switching power supplies and adapters.



TO-252

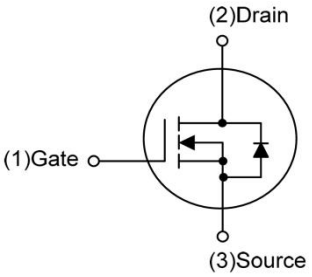


TO-220F

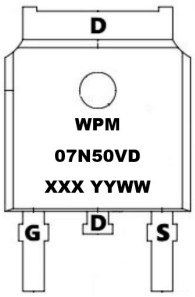
FEATURES

* $R_{DS(ON)} \leq 1.15\Omega$ @ V_{GS}=10V, I_D=3.5A
* $R_{DS(ON)} \leq 0.85\Omega$ @ V_{GS}=10V, I_D=1.0A
* Fast switching capability
* Avalanche energy tested
* Improved dv/dt capability, high ruggedness

SYMBOL



MARKING



WPM=WPMtek's Logo
07N50VD=Marking(TO-252)
07N50VF=Marking(TO-220F)
XXX YYWW=Date Code

ABSOLUTE MAXIMUM RATINGS(TA=25°C, unless otherwise specified.)

SYMBOL	PARAMETER		VALUE	UNIT
V_{DSS}	Drain-Source Voltage		500	V
V_{GSS}	Gate Source Voltage		±30	V
I_D	Continuous Drain Current		7	A
I_{DM}	Drain Current Pulsed (Note 2)		14	A
E_{AS}	Avalanche Energy, Single Pulsed (Note 3)		245	mJ
dv/dt	Peak Diode Recovery dv/dt (Note 4)		5.3	V/ns
P_D	Power Dissipation	TO-220F	32	W
		TO-252	58	
T_J	Junction Temperature		125	°C
T_{STG}	Storage Temperature		-40 to 125	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. L = 10mH, I_{AS} = 7.0A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25°C
4. $I_{SD} \leq$ 4.0A, di/dt ≤200A/μs, $V_{DD} \leq BV_{DSS}$, Starting T_J = 25°C

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THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220F	θJA	62.5	°C/W
	TO-252		110	
Junction to Case	TO-220F	θJC	3.9	°C/W
	TO-252		2.15(Note)	

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

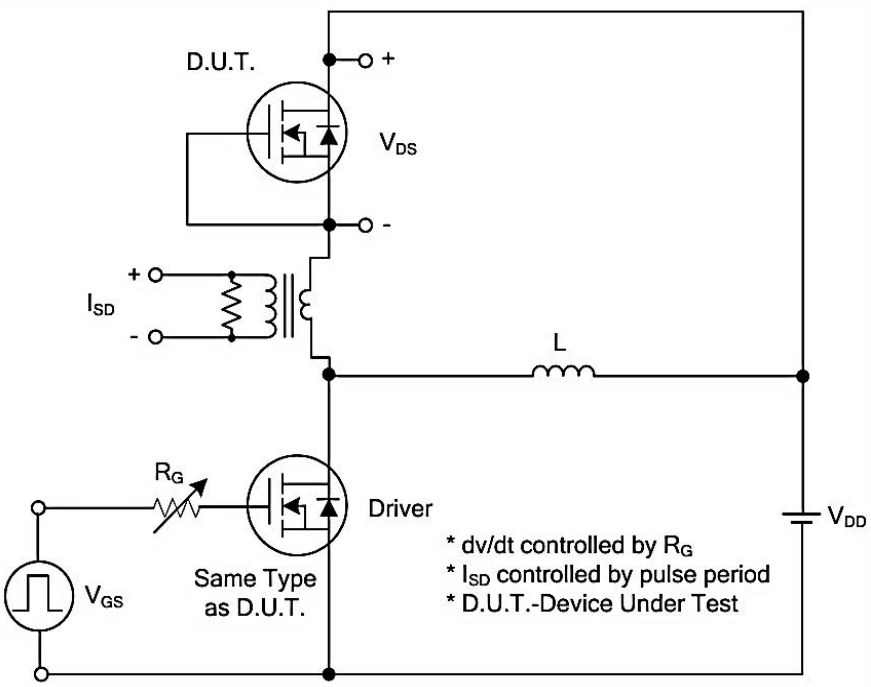
ELECTRICAL CHARACTERISTICS (TA=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	500			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=500V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V			±100	nA
ON CHARACTERISTICS						
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.5A			1.15	Ω
		V_{GS}=10V, I_D=1.0A		0.75	0.85	
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS},I_D=250μA	2.0		4.0	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	V_{DS}=25V, V_{GS}=0V, f=1.0MHz		641		pF
Output Capacitance	C_{OSS}			85		
Reverse Transfer Capacitance	C_{RSS}			5		
SWITCHING PARAMETERS						
Total gate charge(Note 1)	Qg	V_{DS}=100V,V_{GS}=10V I_D=7.0A ,I_G=1.0mA (Note 1, 2)		20		nC
Gate-source charge	Qgs			7		
Gate-drain charge	Qgd			2.7		
Turn-On Delay Time(Note 1)	$t_{D(on)}$	V_{DS}=100V,V_{GS}=10V I_D=5A,R_G=25Ω (Note 1, 2)		32		nS
Turn-On Rise time	tr			24		
Turn-Off Delay Time	$t_{D(off)}$			47		
Turn-Off Fall time	tf			39		
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Maximum Continuous Drain-Source Diode ForwardCurrent	I_S				7	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				14	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_{SD}=7A			1.4	V
Reverse Recovery Time (Note 1)	trr	V_{GS}= 0 V, I_S=7A, di/dt = 100 A/μs		340		ns
Reverse Recovery Charge	Qrr			4.5		μC

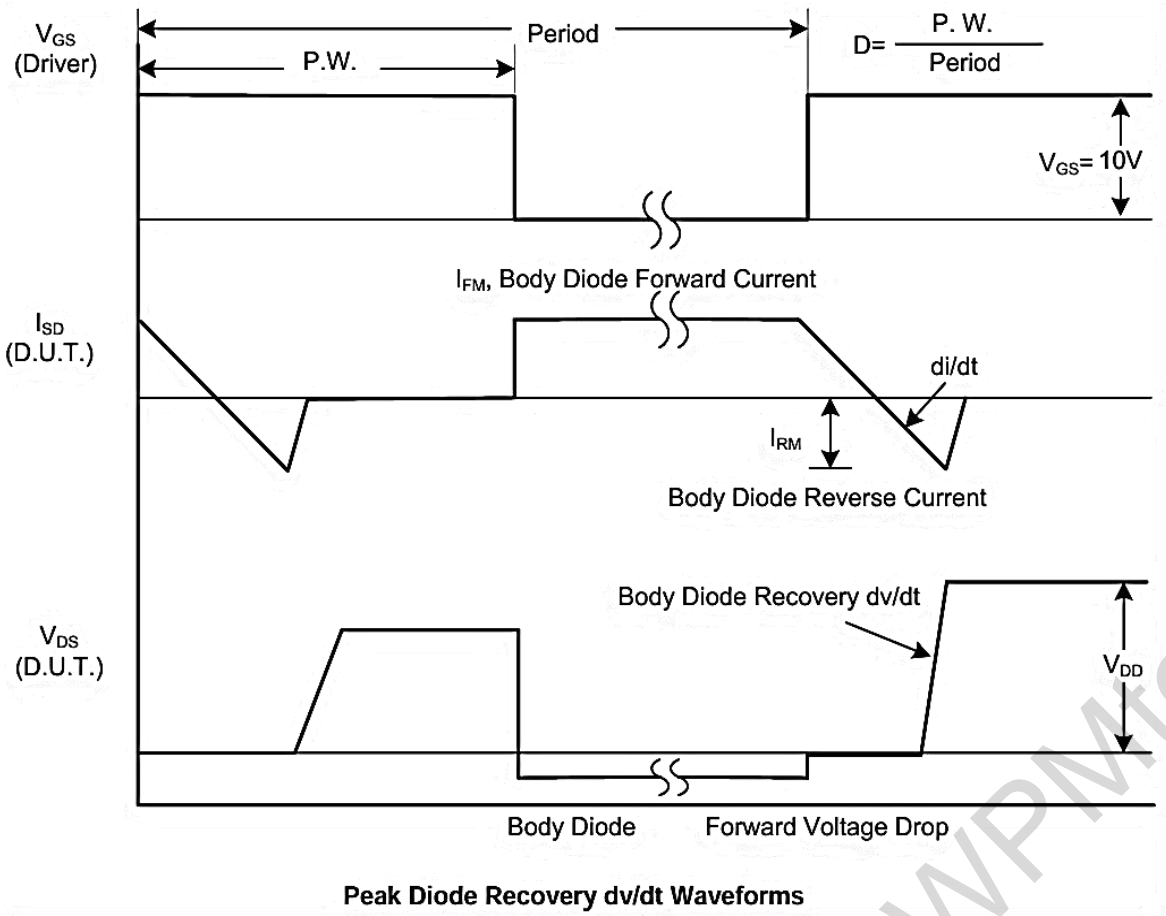
Note: 1. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%； 2.Essentially independent of operating temperature.

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TEST CIRCUITS AND WAVEFORMS



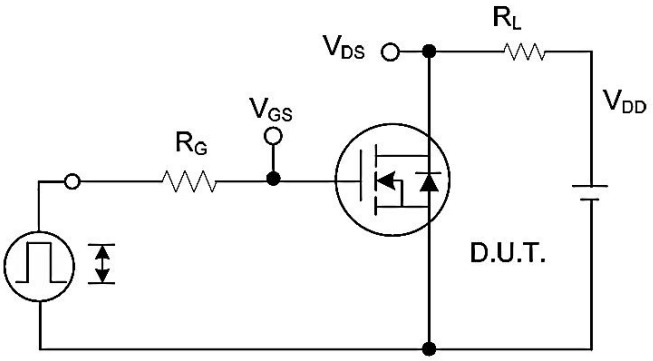
Peak Diode Recovery dv/dt Test Circuit



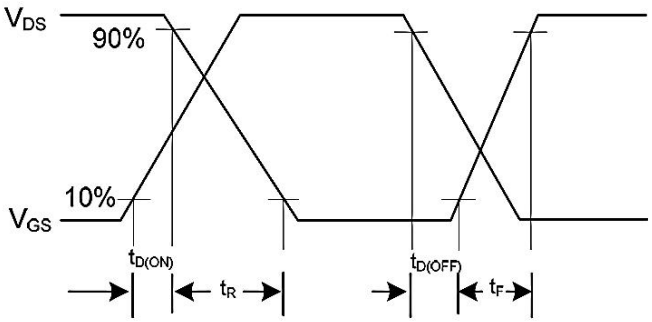
Peak Diode Recovery dv/dt Waveforms

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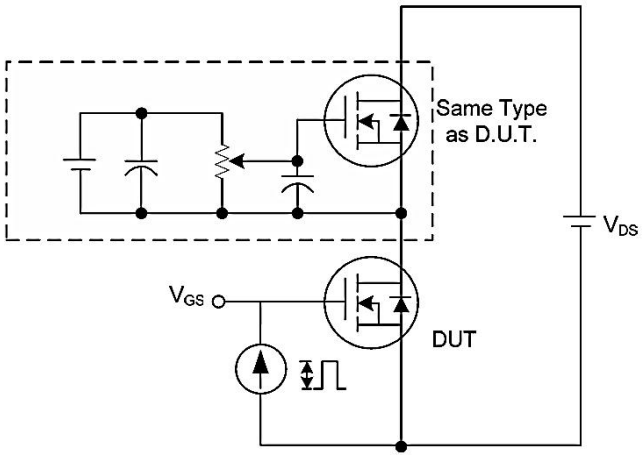
TEST CIRCUITS AND WAVEFORMS(Con.t)



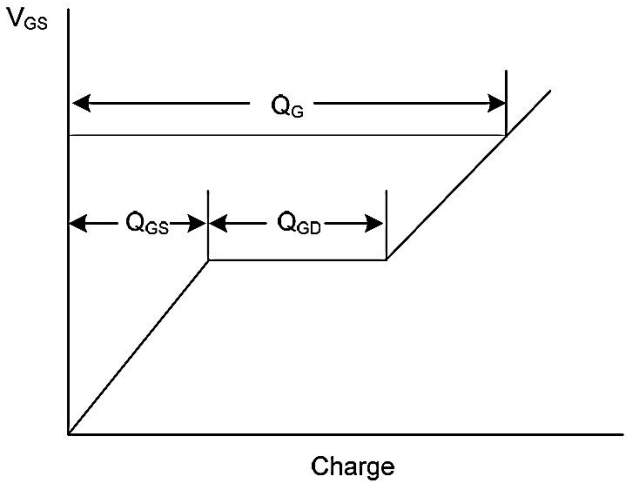
Switching Test Circuit



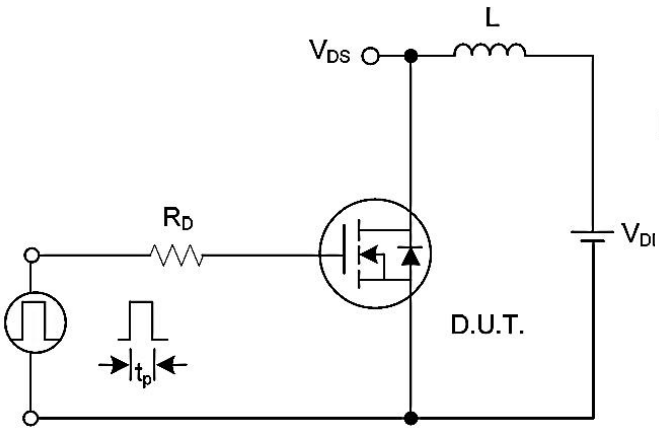
Switching Waveforms



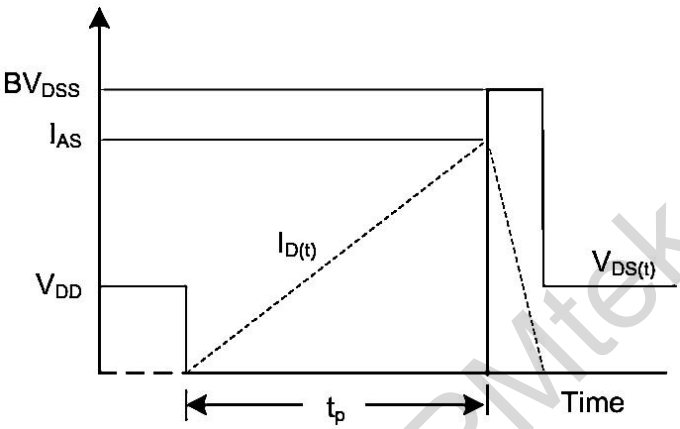
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit

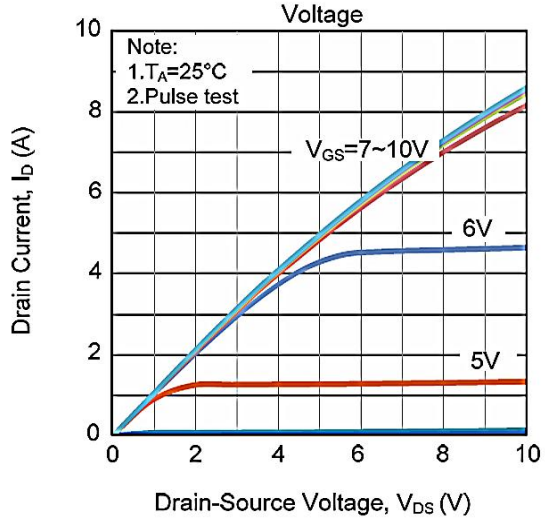


Unclamped Inductive Switching Waveforms

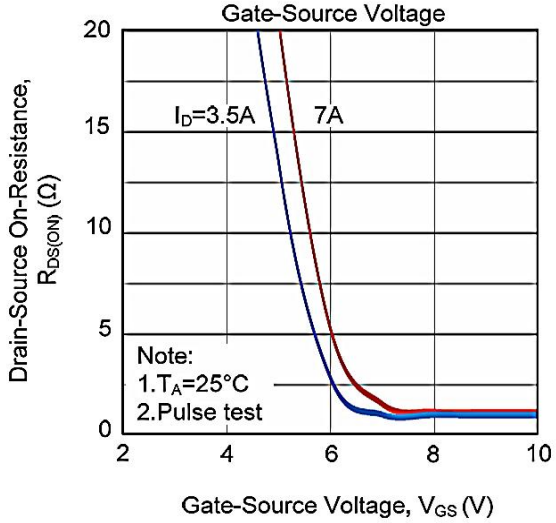
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TYPICAL CHARACTERISTICS(1)

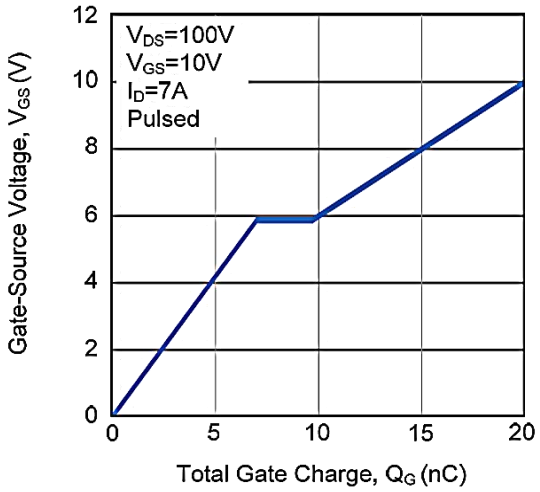
Drain Current vs. Drain-Source Voltage



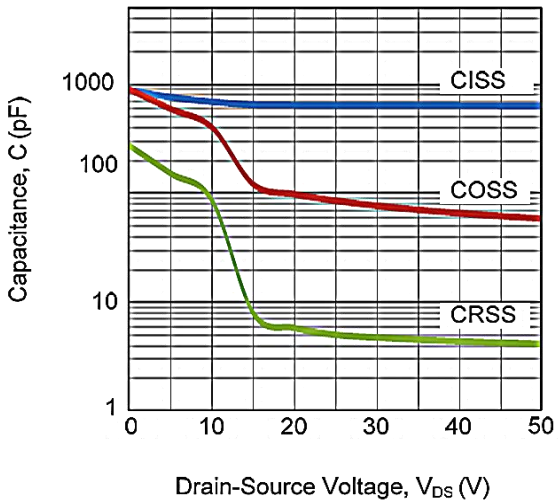
Drain-Source On-Resistance vs. Gate-Source Voltage



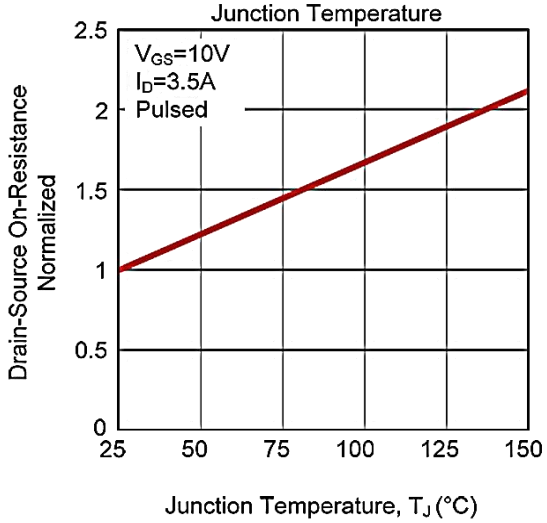
Gate Charge Characteristics



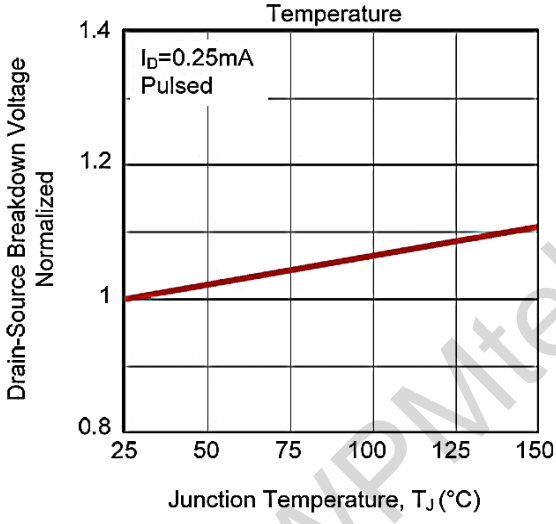
Capacitance Characteristics



Drain-Source On-Resistance vs. Junction Temperature



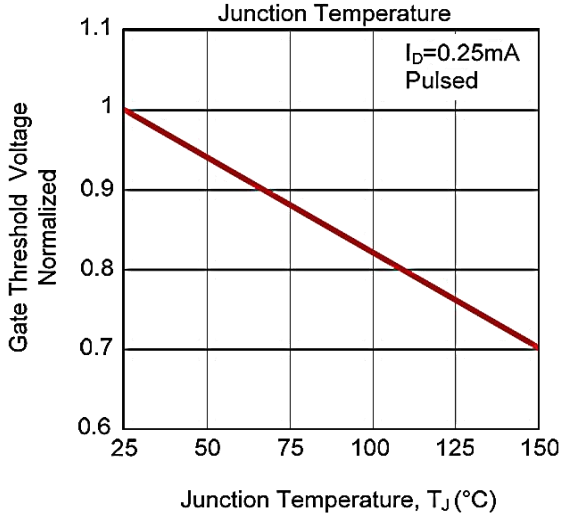
Breakdown Voltage vs. Junction Temperature



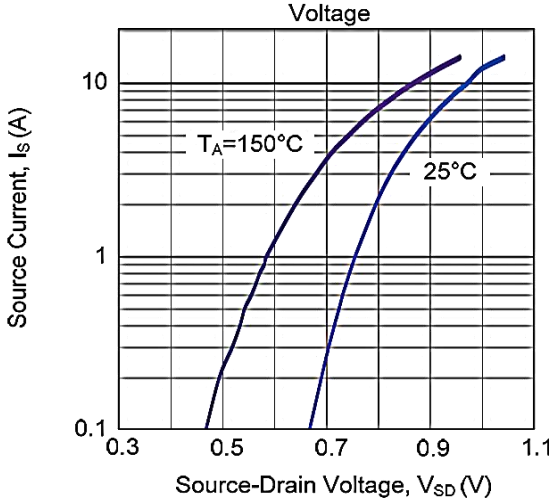
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TYPICAL CHARACTERISTICS(Con.t)

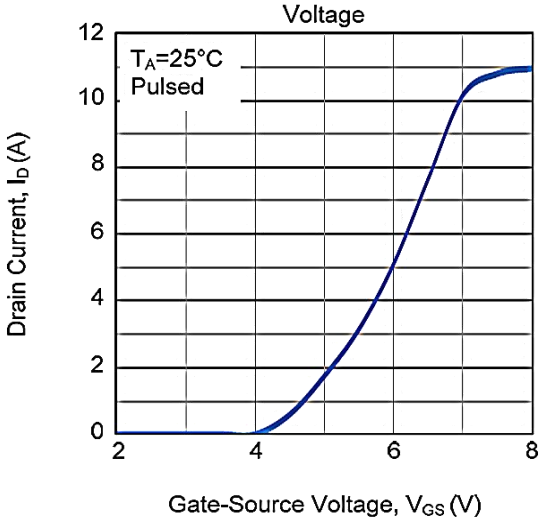
Gate Threshold Voltage vs. Junction Temperature



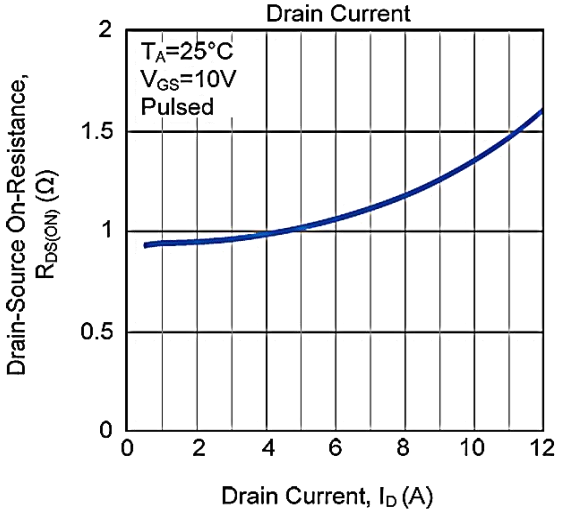
Source Current vs. Source-Drain Voltage



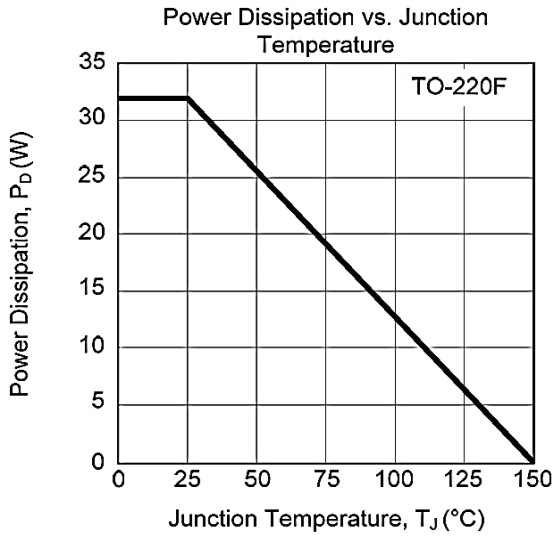
Drain Current vs. Gate-Source Voltage



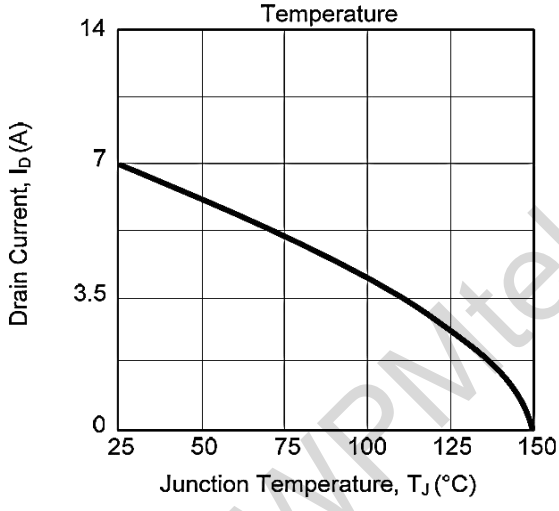
Drain-Source On-Resistance vs. Drain Current



Power Dissipation vs. Junction Temperature

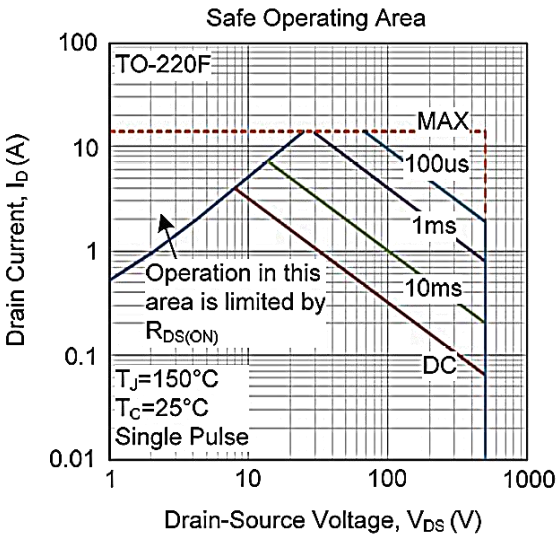


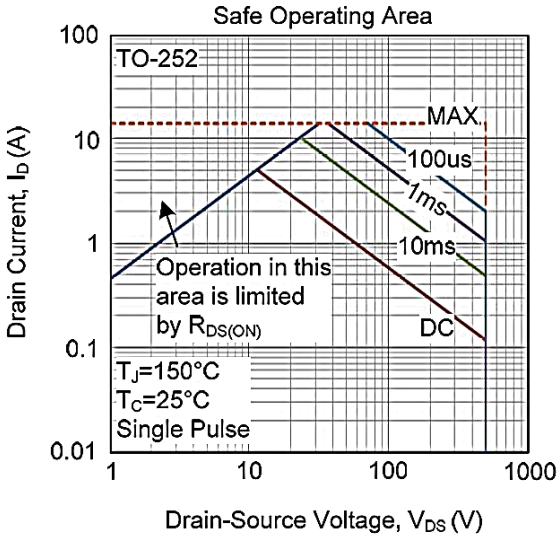
Drain Current vs. Junction Temperature



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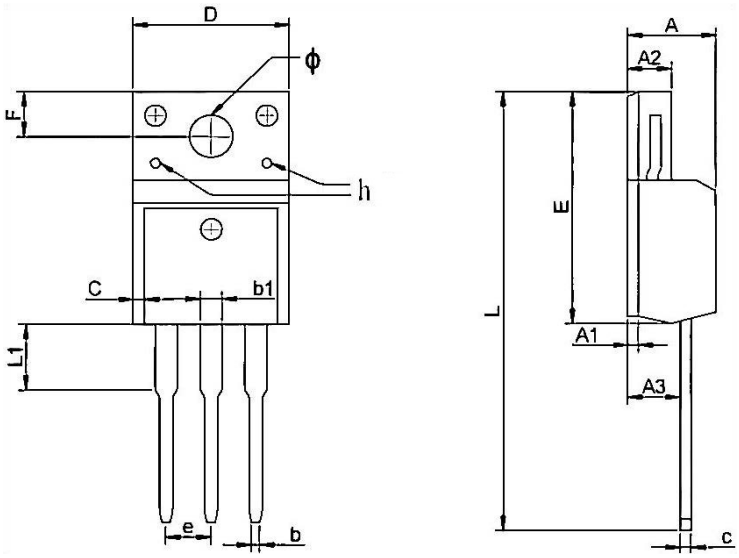
TYPICAL CHARACTERISTICS(Con.t)





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TO- 220F PACKAGE OUTLINE DIMENSIONS

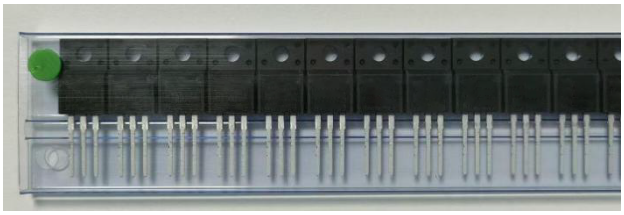


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max	Min	Max
A	4.300	4.750	0.169	0.185
A1	1.830 REF		0.072 REF	
A2	2.300	2.850	0.090	0.112
A3	2.500	2.900	0.098	0.114
b	0.400	0.420	0.016	0.016
b1	1.220	1.280	0.048	0.050
C	0.690	0.720	0.027	0.028
c	0.490	0.510	0.019	0.020
D	9.960	10.200	0.392	0.400
E	15.000	15.950	0.588	0.625
e	2.574 TYP		0.101TYP	
F	3.470 REF		0.136 REF	
y	3.200 REF		0.125 REF	
h	0.000	0.300	0.000	0.012
L	28.780	28.900	1.128	1.133
L1	2.990	3.100	0.117	0.122

TO - 220F PACKING INFORMATION



50PCS



20 Tube



5 Inner Box



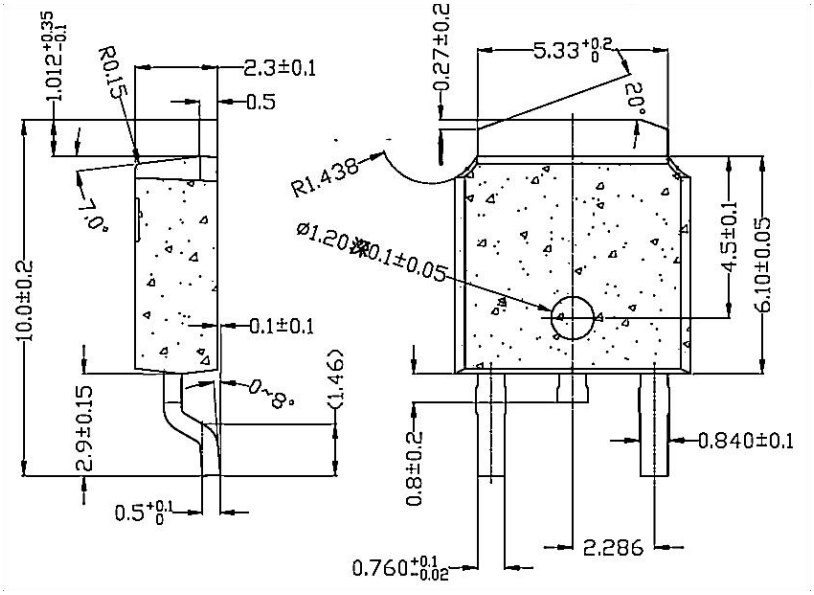
Outer Box

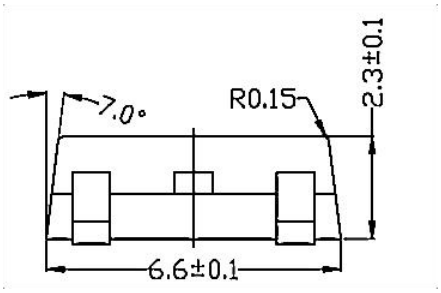
Inner Box

Package version	Tube dimensions LxW×H (mm)	Per Tube (pcs)	Tube per box	Inner box dimensions LxW×H (mm)	PCS/ Inner box	Outer box dimensions L×W×H(mm)	PCS/ Outer box
TO-220F	530*32*7	50	20	580*155*50	1000	602*277*188	5000

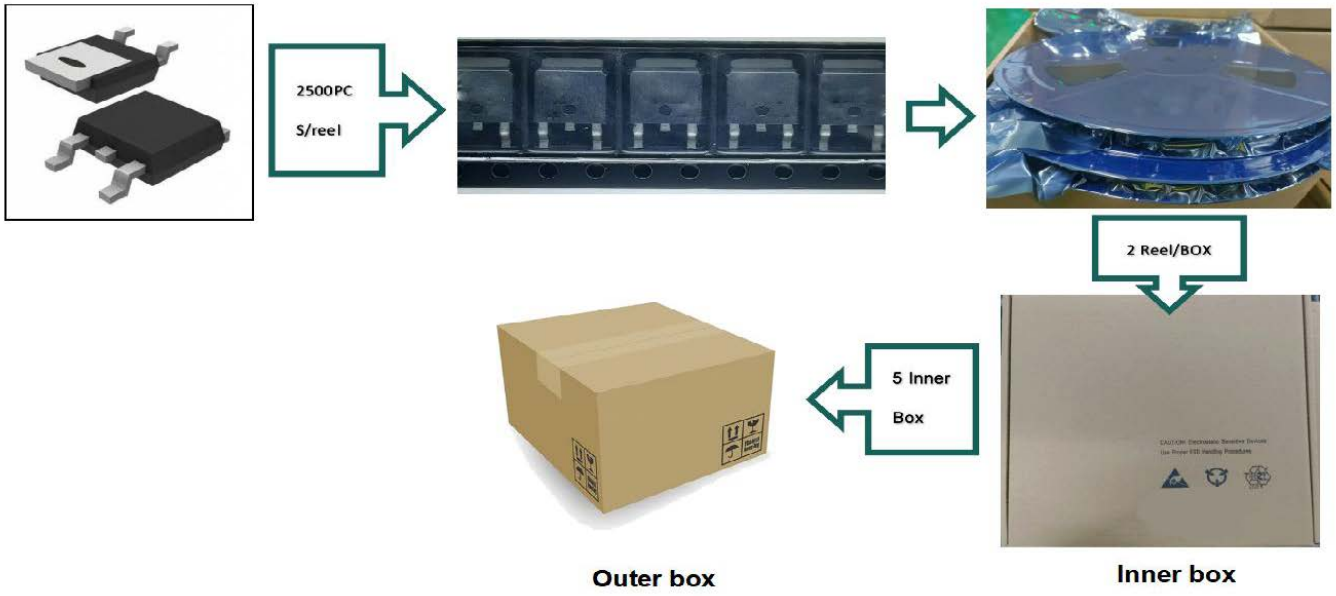
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TO - 252 PACKAGE OUTLINE DIMENSIONS





TO - 252 PACKING INFORMATION



Package version	Reel dimensions Φ×H (mm)	Per Reel (pcs)	Reels per box	Inner box dimensions L×W×H(mm)	Outer box (pcs)	Outer box dimensions L×W×H (mm)
TO-252	Φ330*20	2500	2	360*340*50	25000	375*375*280

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