TO-220F ṂṂ Ŀ VIF N ڜ MOS ʃ ᷓ Ẓ ᵑ
SiC N-CHANNEL MOSFET in a TO-220F Plastic Package.

V_{DS}=650V ψ I_D=7A
$R_{DS(on)}$@15VÒ650mq(Type.500mq)
$R_{DS(on)}$@18VÒ600mq(Type. 378mq)

0HG ɨ ʊ ɔ ◊ SG ð Ϫ Ϫ ɔ ʰ SF ɔ ◊ گ ب ʰ Ⱳ ɔ ɔ ʊ5 Φ ჭ Ϫ ɔ ʰ

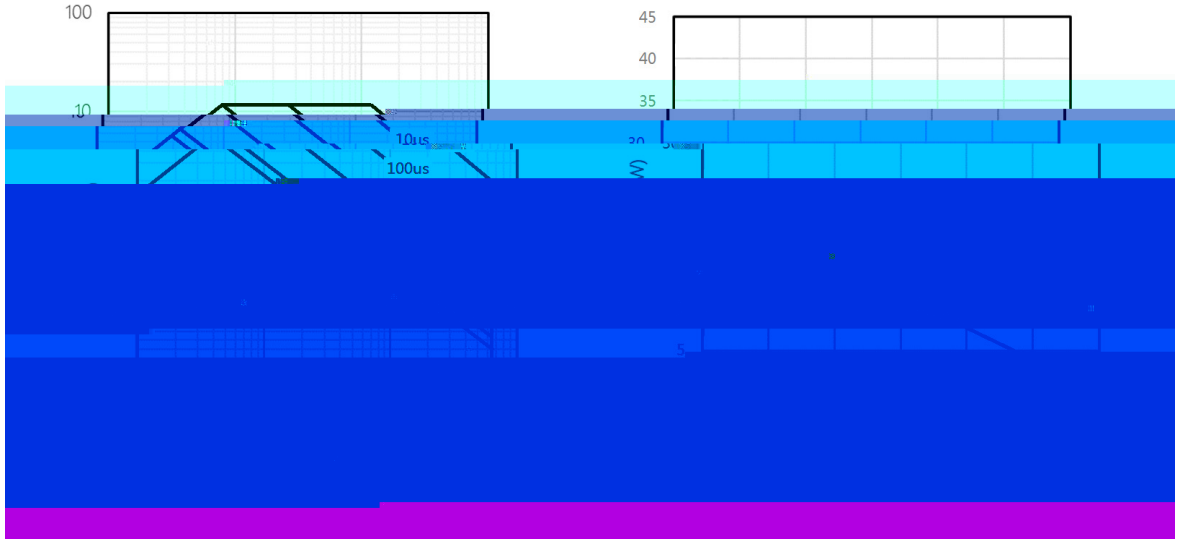
v ̈Ω Parameter	٩ N Symbol	̈Ω Ö Rating	D Ꮋ Unit
Drain-Source Voltage	V_{DSS}	650	V
Continuous DC Drain Current for $R_{th(j-c,typ.)}$, Limited by $T_{VJ(max)}$	I_D(Tc=25)	7	A
	I_D(Tc=100)	5.7	A
Peak Drain Current, tp Limited by $T_{VJ(max)}$	I_{DM}	12	A
Gate-Source Max Voltage	$V_{GS,max}$	-10/+22	V
Gate-Source Operate Voltage	$V_{GS,op}$	0/+15	V
Single Pulse Avalanche Energy	E_{AS}	10.2	mJ
Power Dissipation or $R_{th(j-c,typ.)}$	P_D(Tc=25)	23	W
Operating and Storage Temperature Range	T_{VJ},T_{STG}	-55 to 175	ł
MOSFET/Body Diode Junction-Case Thermal Resistance	$R_{th(j-c)}$	6.52	ł /W

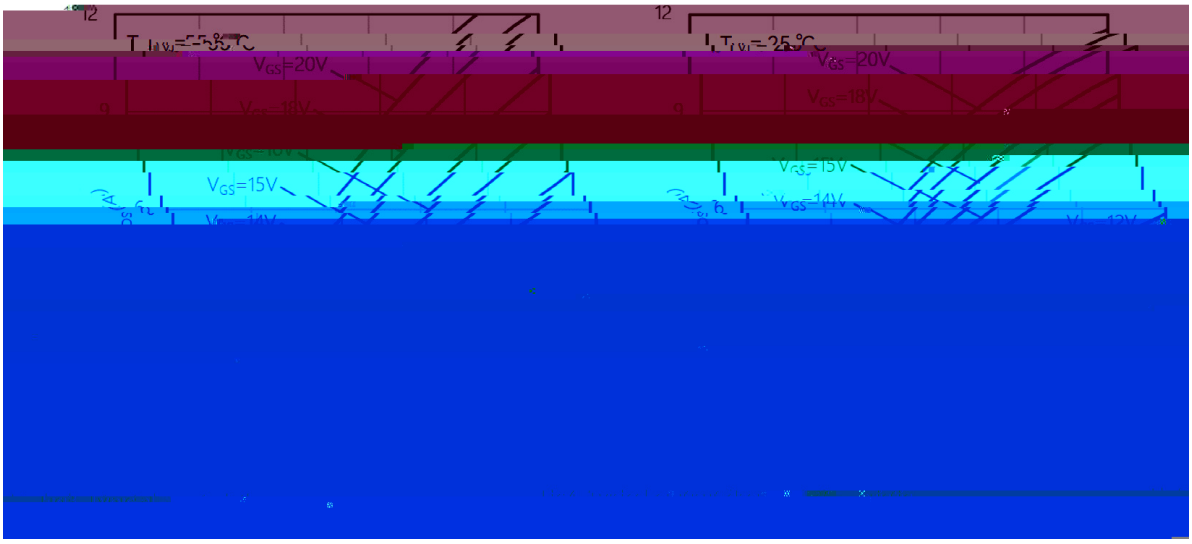
v ̈Ω Parameter	٩ N Symbol	‖ ⁝† Ţ Test Conditions	ω ņ Ö Min	Ɛ ʒ Ö Typ	ω ᶻ Ö Max	D Ꮋ Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=1mA	650			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=3.5mA	3		5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=650V V_{GS}=0V		0.1	20	εA

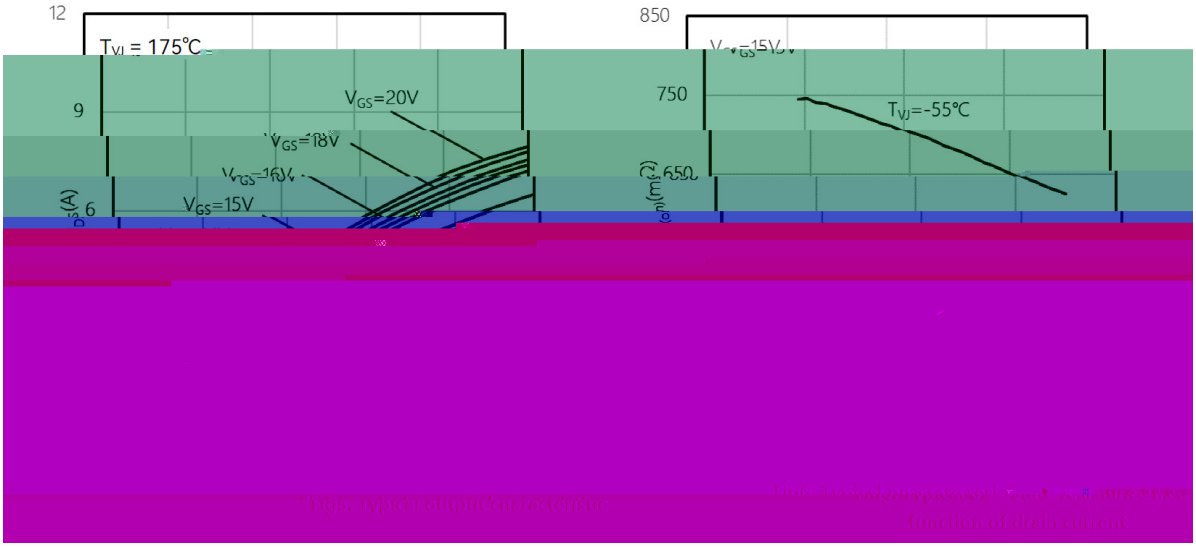
A

v ¨Ω Parameter	ϒ ᴺ Symbol	╨ ⁝ ˥ ţ Test Conditions	ѡ ṇ Ө Min	Ɛ ʒ Ө Typ	ѡ ᶻ Ө Max	ᴅ Ꮋ Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=0/15V L=600εH V_{DD}=400V I_D=4A R_g=10Ω		16.1		ns
Turn-On Rise Time	t_r			13.9		
Turn-Off Delay Time	$t_{d(off)}$			13.3		
Turn-Off Fall Time	t_f			13.7		
Turn ī On Switching Loss	E_{on}			41.2		
Turn ī Off Switching Loss	E					εJ

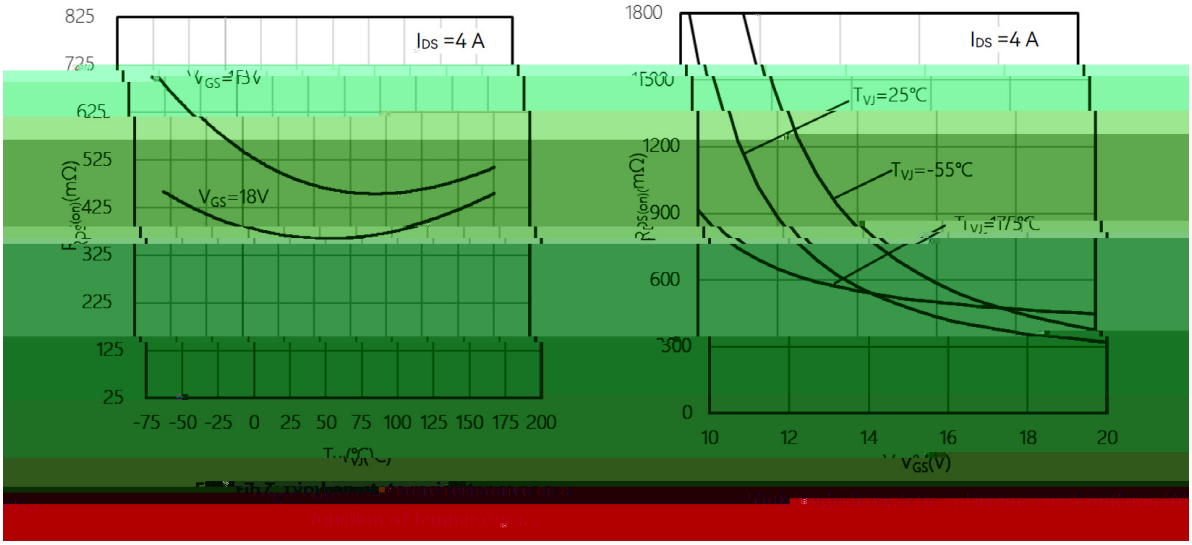
/ Electrical Characteristic Curve

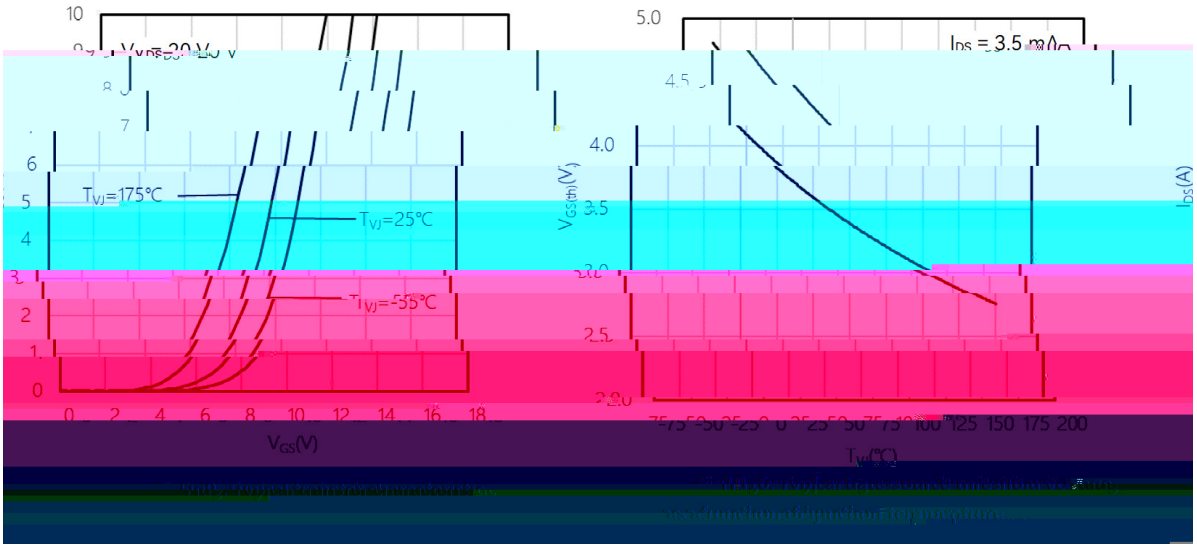


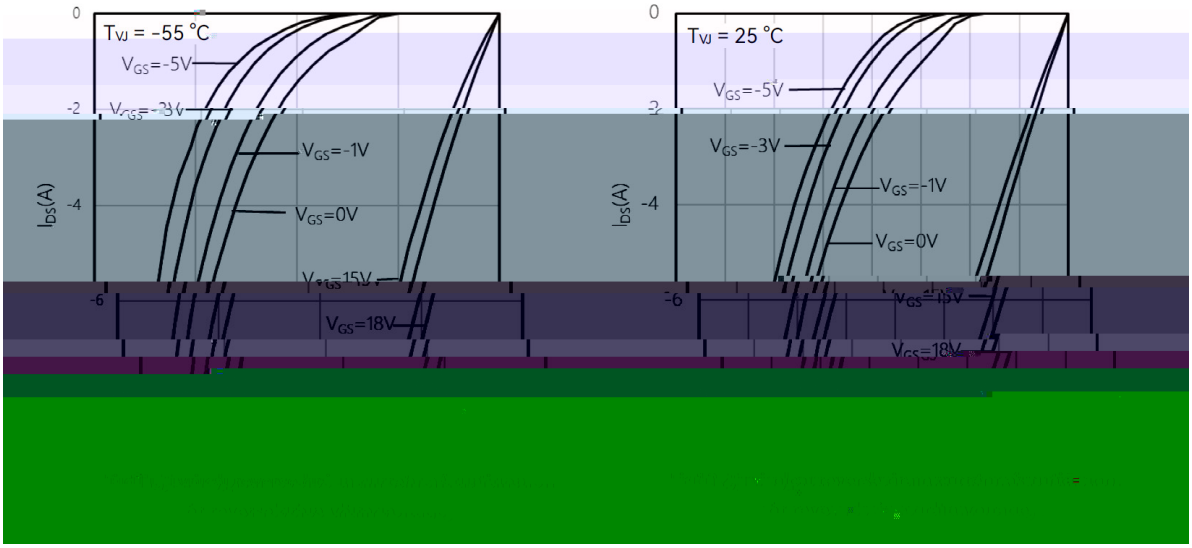




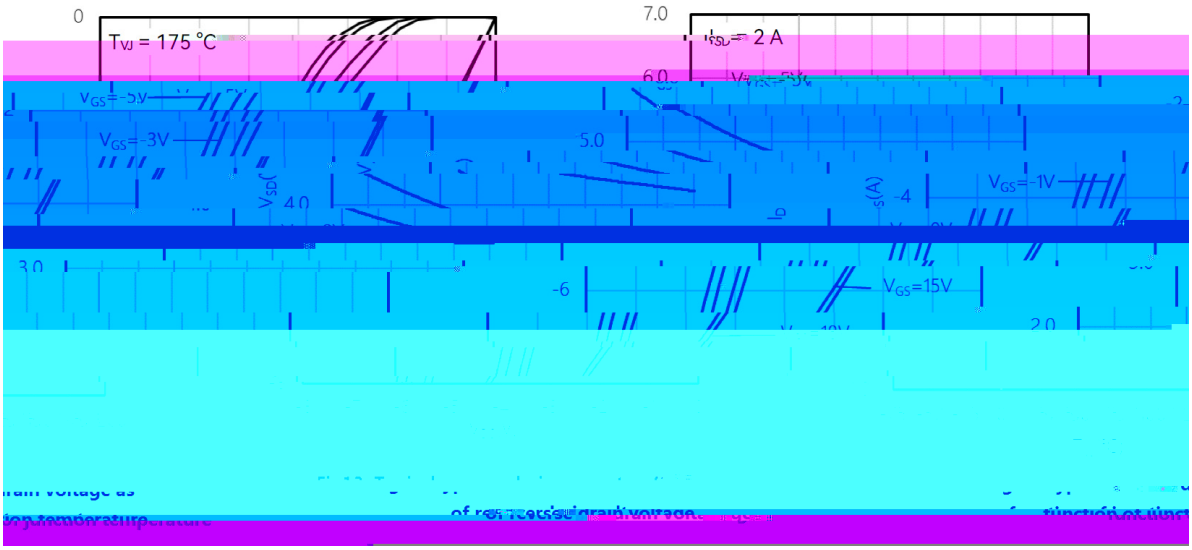
/ Electrical Characteristic Curve

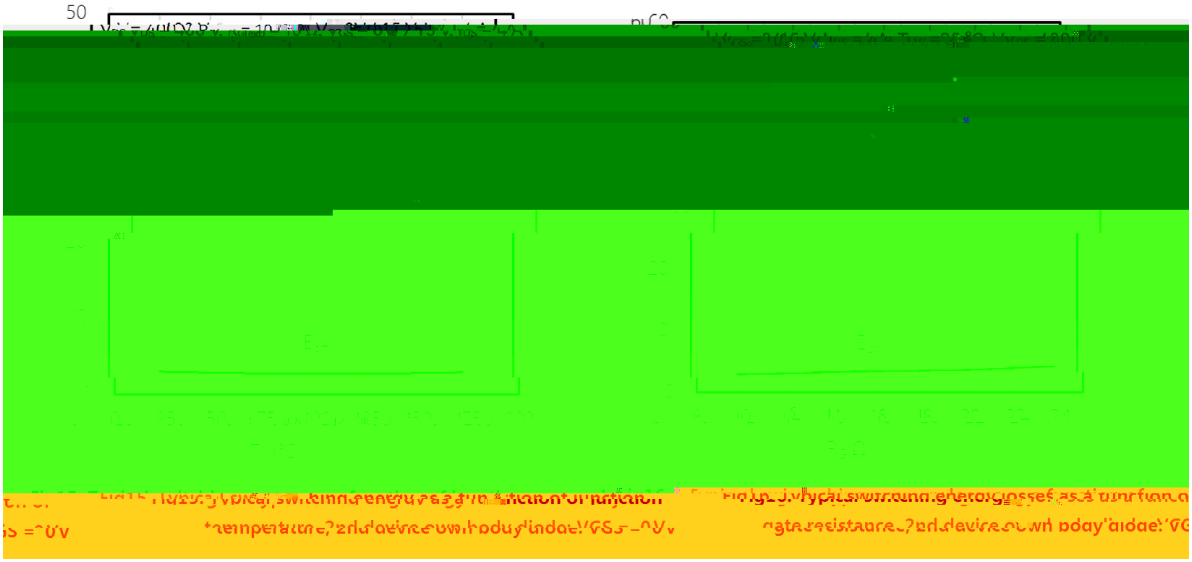


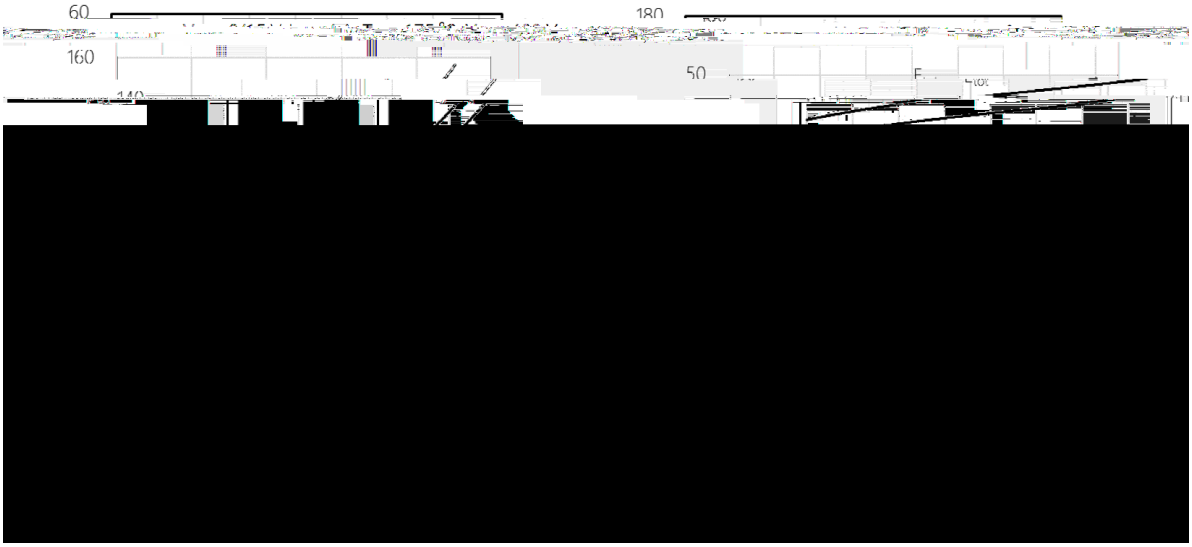




/ Electrical Characteristic Curve







/ Electrical Characteristic Curve

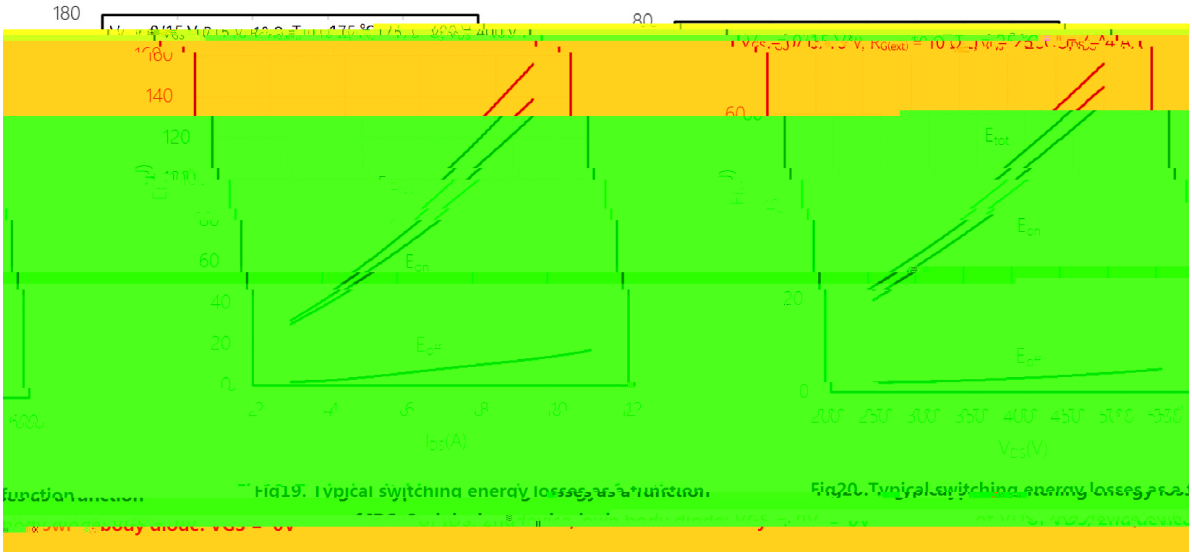
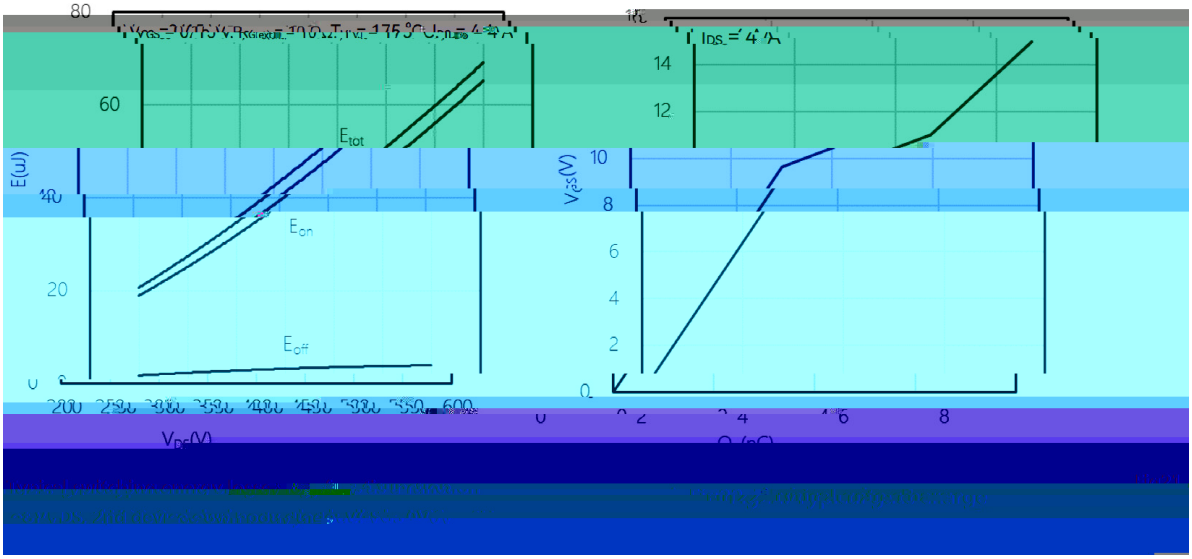


Fig19. Typical switching energy losses as a function of drain current

Fig20. Typical switching energy losses as a function of drain-source voltage



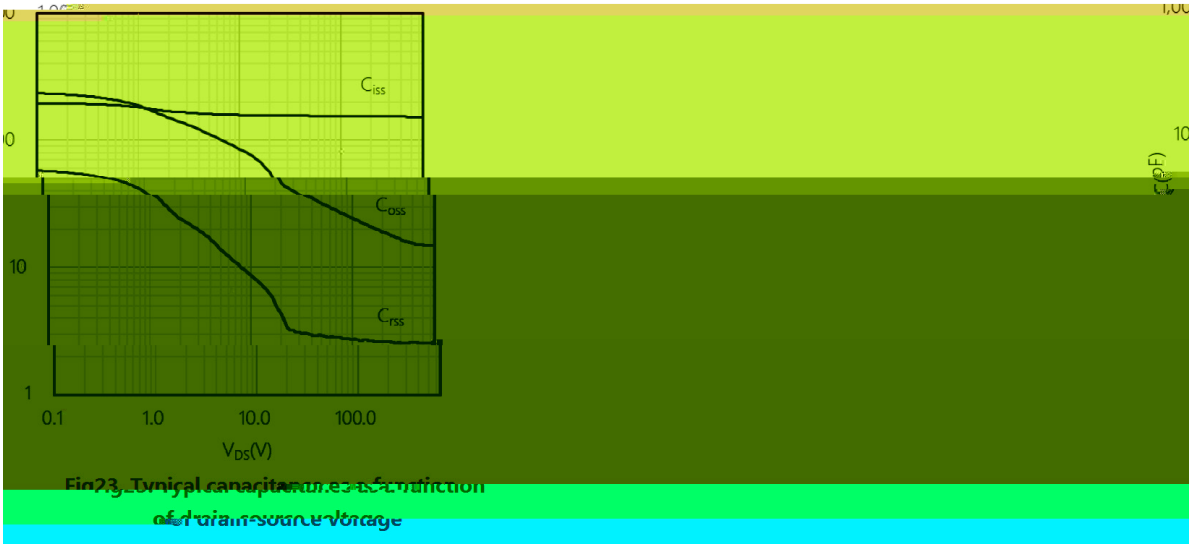


Fig23. Typical capacitances as a function of drain-source voltage

/ Electrical Characteristic Curve

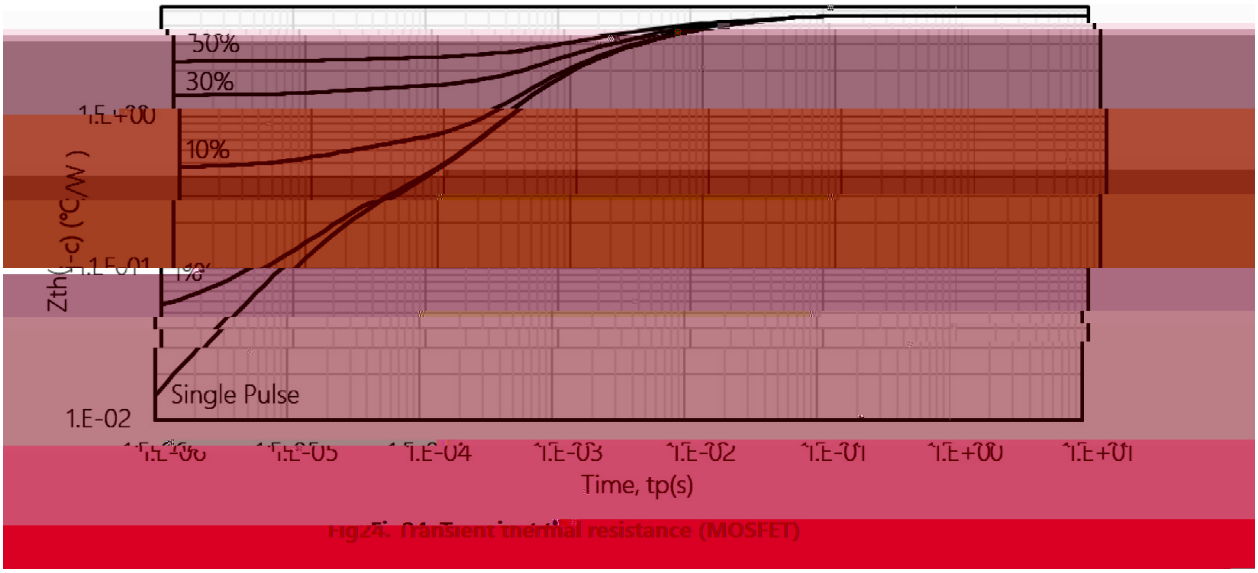
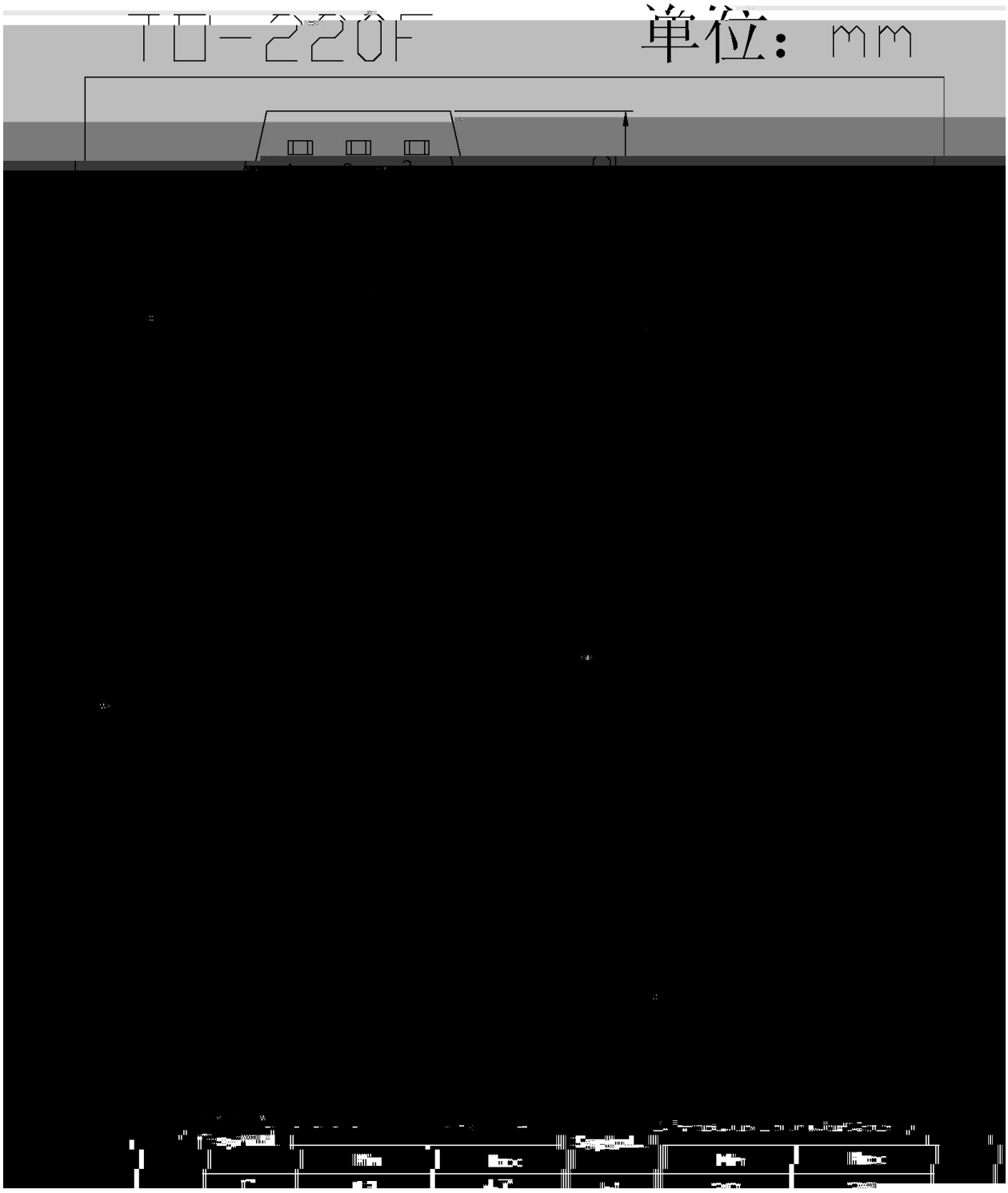
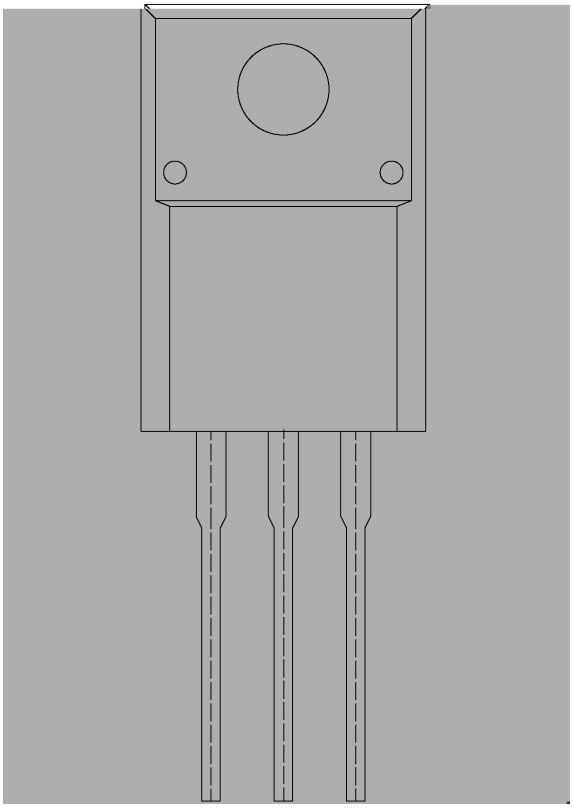


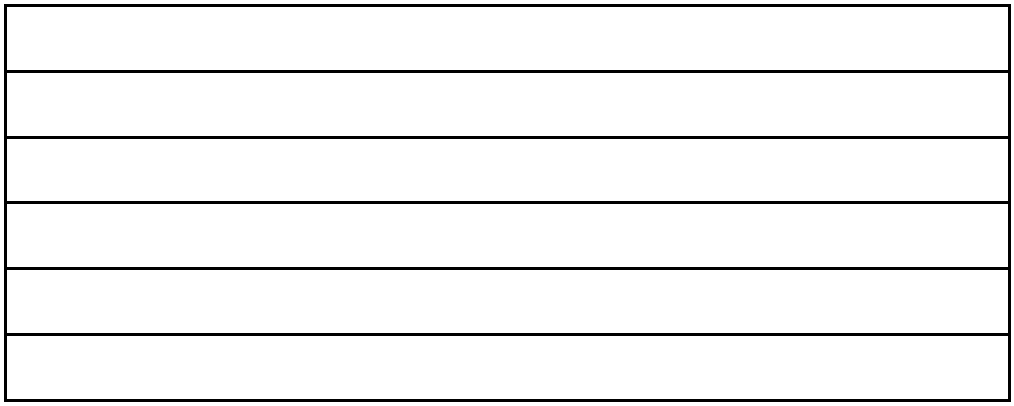
Fig24. Transient thermal resistance (MOSFET)

/ Package Dimensions





( ) / Temperature Profile for Dip Soldering(Pb-Free)



ب ˝ χ

1 Ĺ ♬ □ ỷ 25 Ḱ 150 ɬ ı ˋH ڑ 60 Ḱ 90sec;

2 Š Ë □ ỷ 255 ° 5 ɬ ı ˋH ڑ ˋY ʌ ʁ 5 ° 0.5sec;

3 ì ˙ ϒ ˛ ɔ ﻩ ỷ ʁ 2 Ḱ 10 ɬ /sec.

Note:

1.Preheating:25~150 ɬ , Time:60~90sec.

2.Peak Temp.:255 ° 5 ɬ , Duration:5 ° 0.5sec.

3. Cooling Speed: 2~10 ɬ /sec.

/ In-line Package Resistance to Soldering Heat Test Conditions

□ ỷ χ 270 ° 5 ɬ ˋH ڑ χ 10 ° 1 sec. Temp.:270±5 Time:10±1 sec

/ Packaging SPEC.

¨Ω ţ ɣ Ь / BULK

Package Type	Units					Dimension		(unit mm³)
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

˛ ˥ ɣ Ь / TUBE

Package Type	Units					Dimension		(unit mm³)
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

/ Notices

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All information provided in this docum