/ Descriptions

TO-220F SiC N MOS

SiC N-CHANNEL MOSFET in a TO-220F Plastic Package.

/ Features

V_{DS}=650V I_D=20A

$R_{DS(on)}$@15V≤208mΩ(Type.160mΩ)

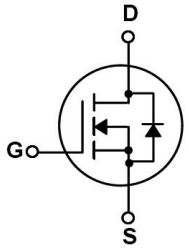
$R_{DS(on)}$@18V≤180mΩ(Type.124mΩ)

/ Applications

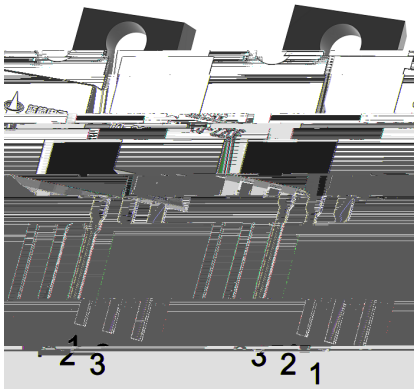
LED PD PC

LED driver, PD charger, PC adapter, Air-conditioning, E-bike charger.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S

/ Marking

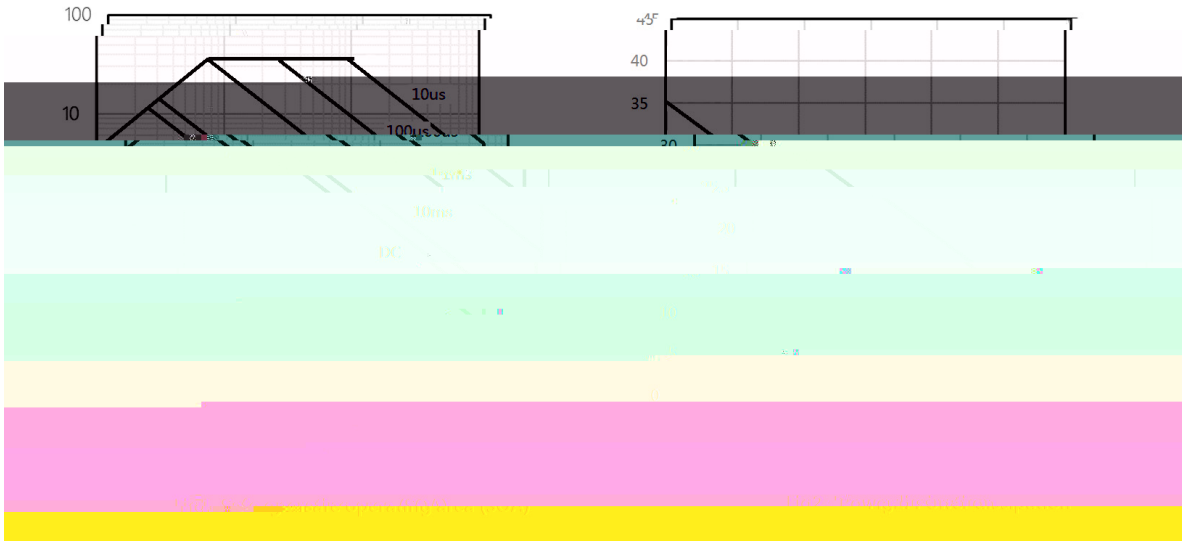
See Marking Instructions.

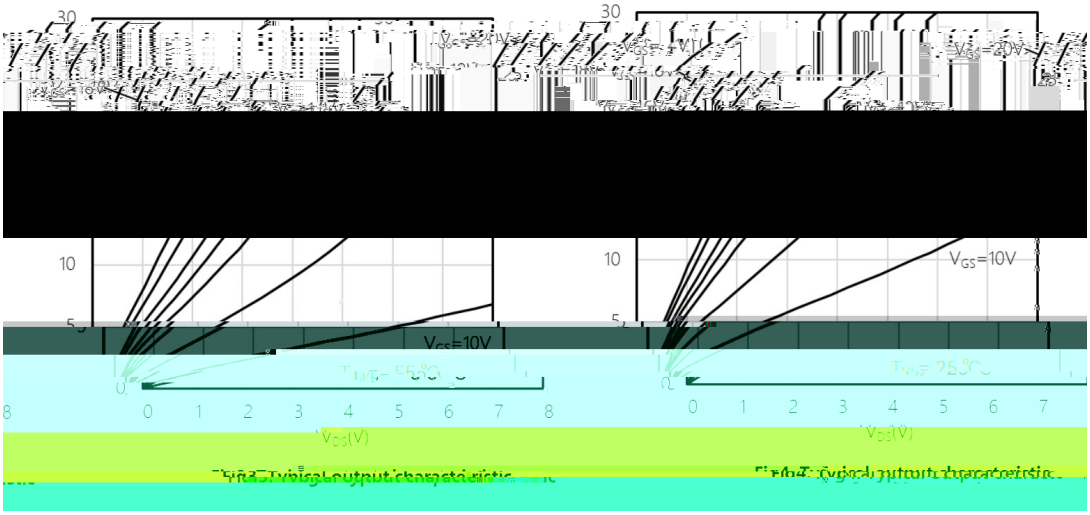
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	650	V
Continuous DC Drain Current for $R_{th(j-c,typ.)}$, Limited by $T_{VJ(max)}$	I_D(Tc=25)	20	A
	I_D(Tc=100)	14.4	A
Peak Drain Current, tp Limited by $T_{VJ(max)}$	I_{DM}	34.5	A
Gate-Source Max Voltage	$V_{GS,max}$	-10/+22	V
Gate-Source Operate Voltage	$V_{GS,op}$	0/+15	V
Single Pulse Avalanche Energy	E_{AS}	28	mJ
Power Dissipation or $R_{th(j-c,typ.)}$	P_D(Tc=25)	35	W
Operating and Storage Temperature Range	T_{VJ},T_{STG}	-55 to 175	
MOSFET/Body Diode Junction-Case Thermal Resistance	$R_{th(j-c)}$	4.3	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=100μA	650			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V				

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=0/15V L=600μH V_{DD}=400V I_D=10A R_g=2.2		21.2		ns
Turn-On Rise Time	t_r			14.4		
Turn-Off Delay Time	$t_{d(off)}$			27.0		
Turn-Off Fall Time	t_f			14.2		
Turn−On Switching Loss	E_{on}			106		μJ

/ Electrical Characteristic Curve





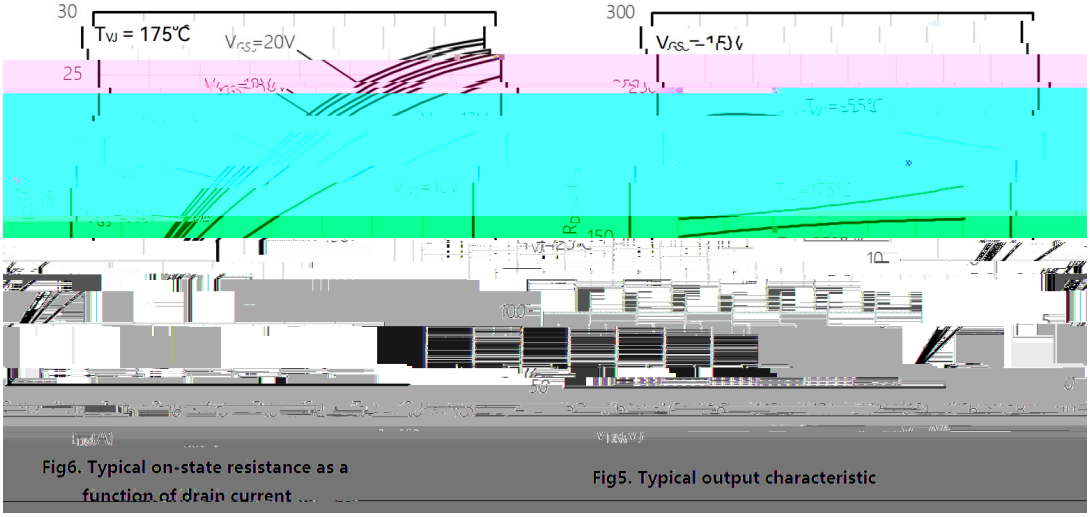
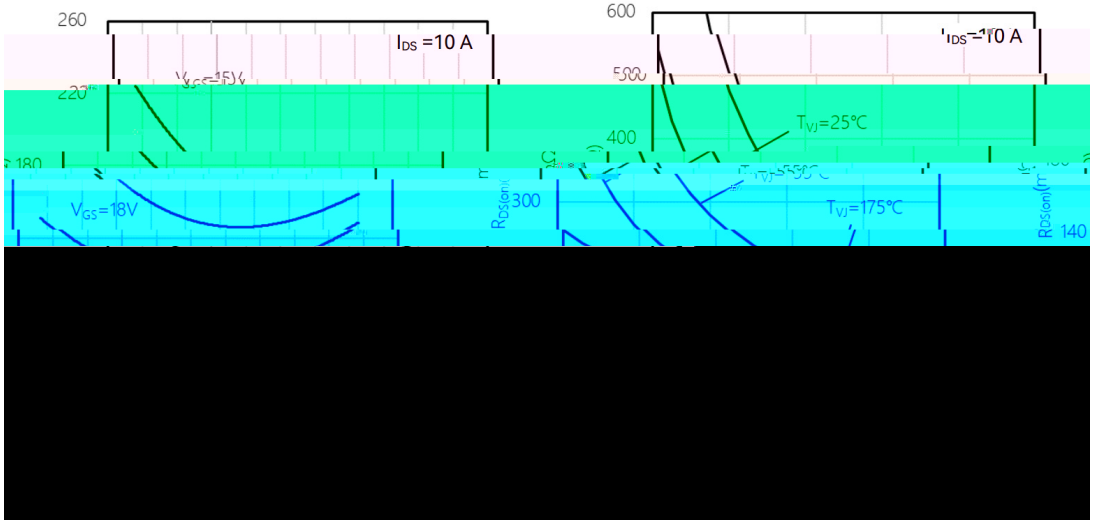


Fig6. Typical on-state resistance as a function of drain current ...

Fig5. Typical output characteristic

/ Electrical Characteristic Curve



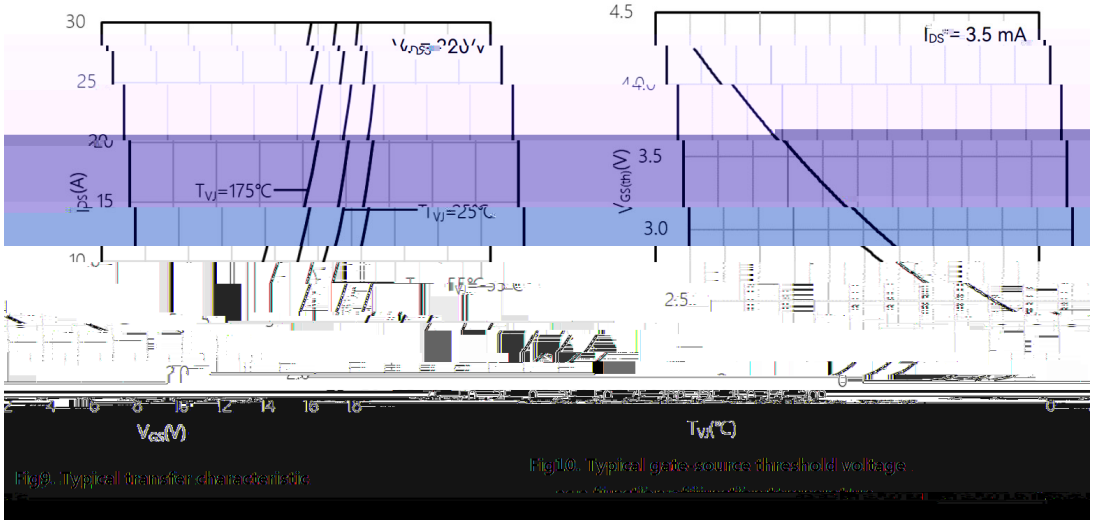
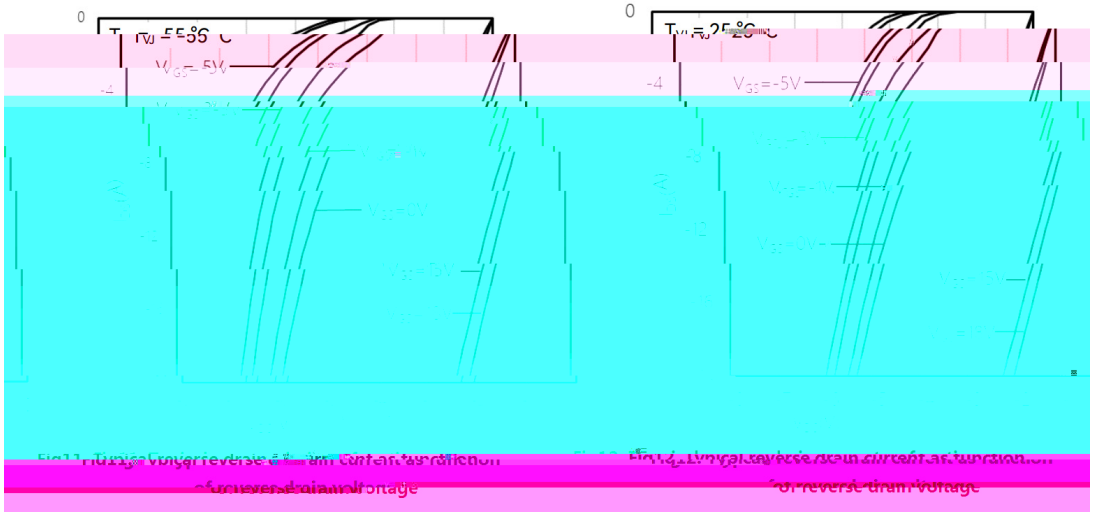
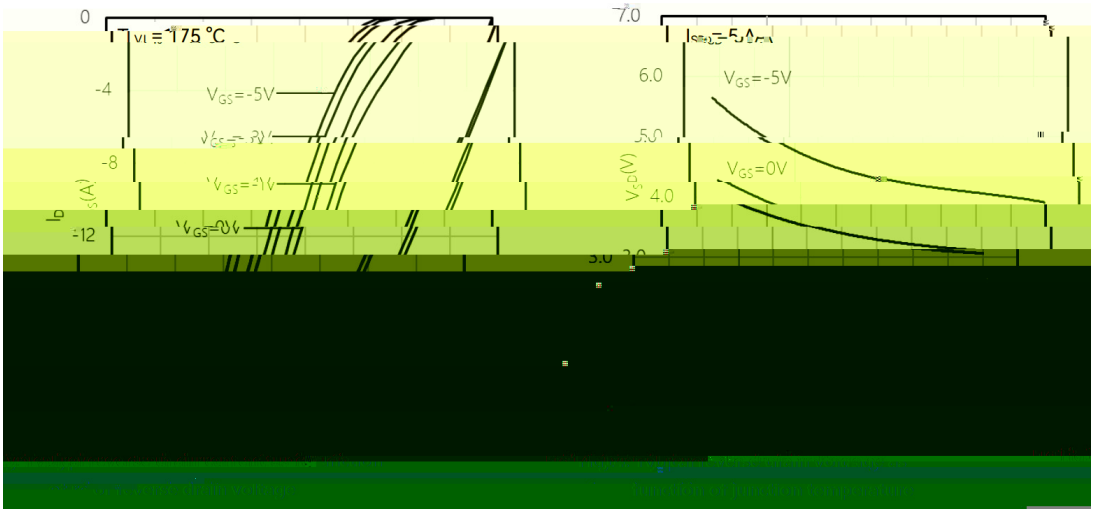


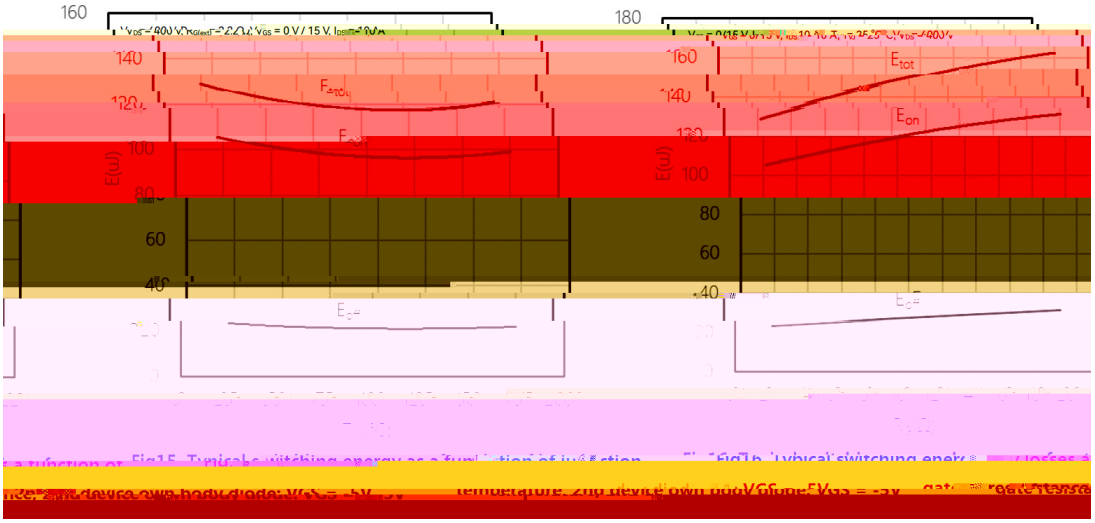
Fig9. Typical transfer characteristic

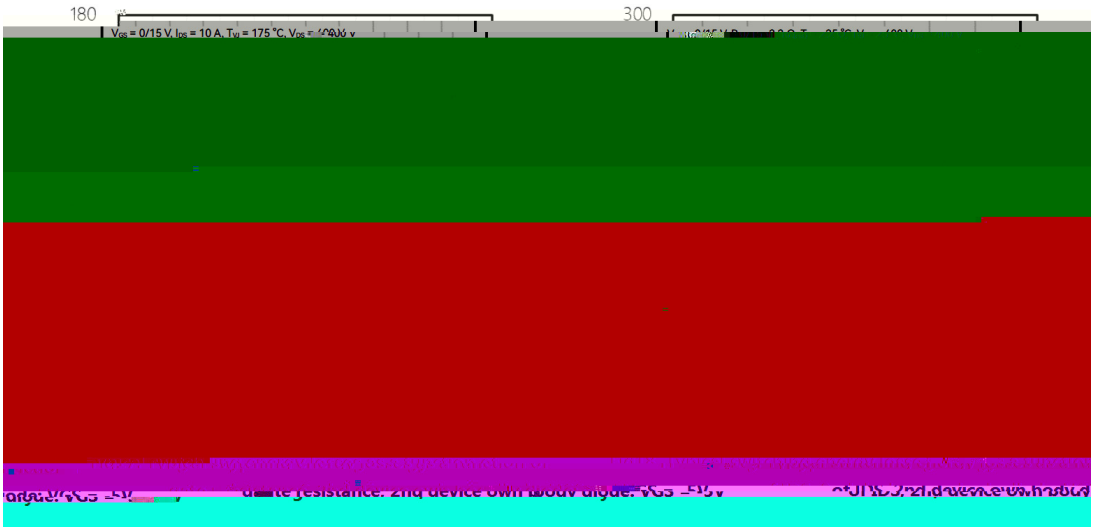
Fig10. Typical gate-source threshold voltage



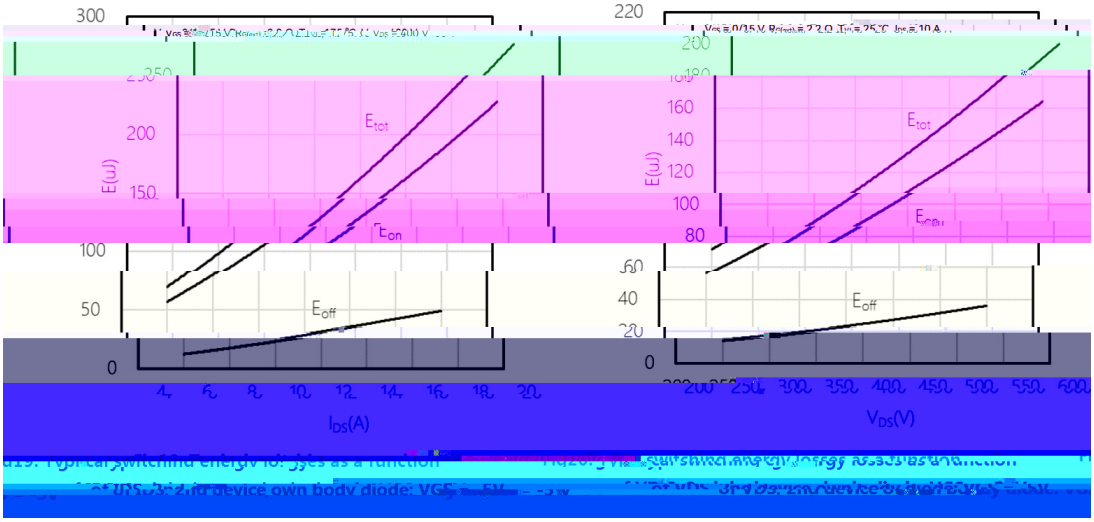
/ Electrical Characteristic Curve

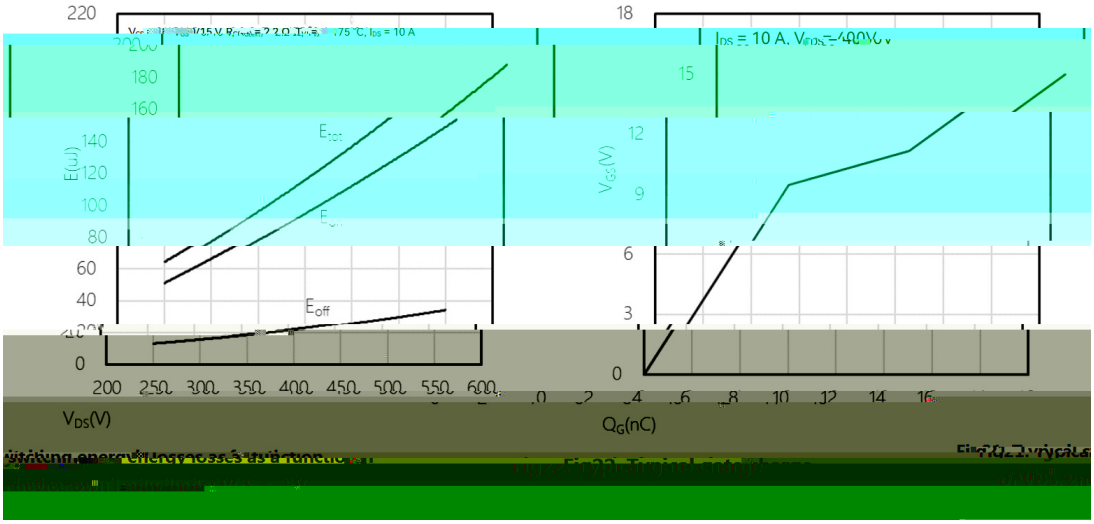


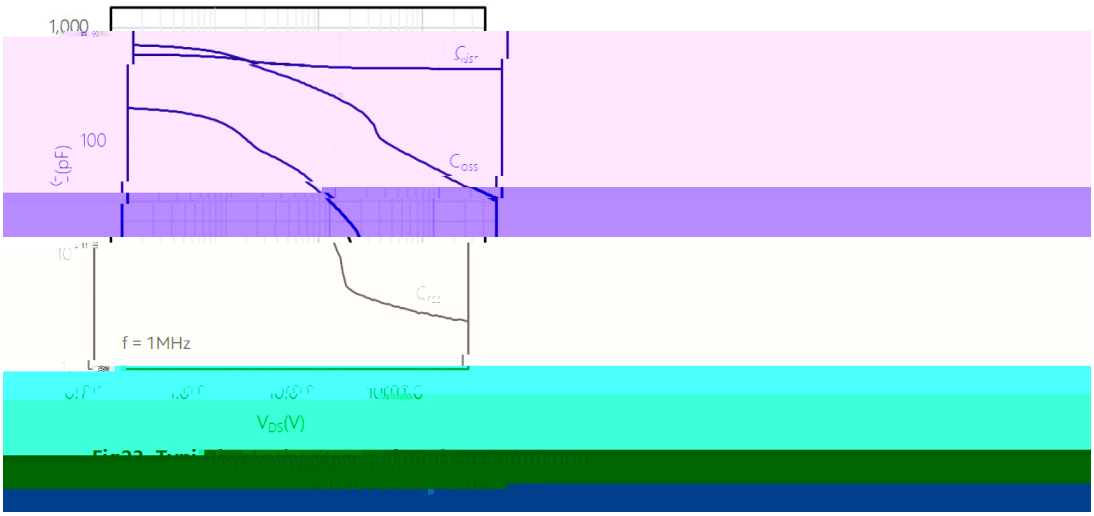




/ Electrical Characteristic Curve







/ Electrical Characteristic Curve

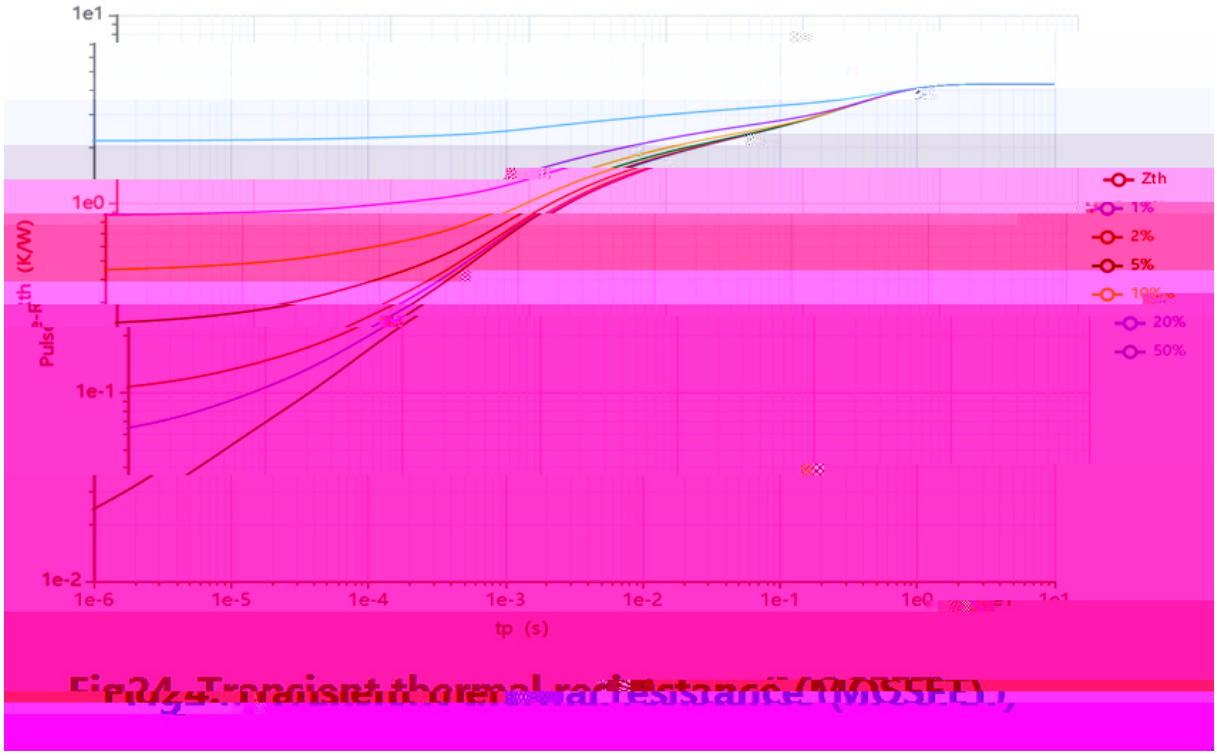
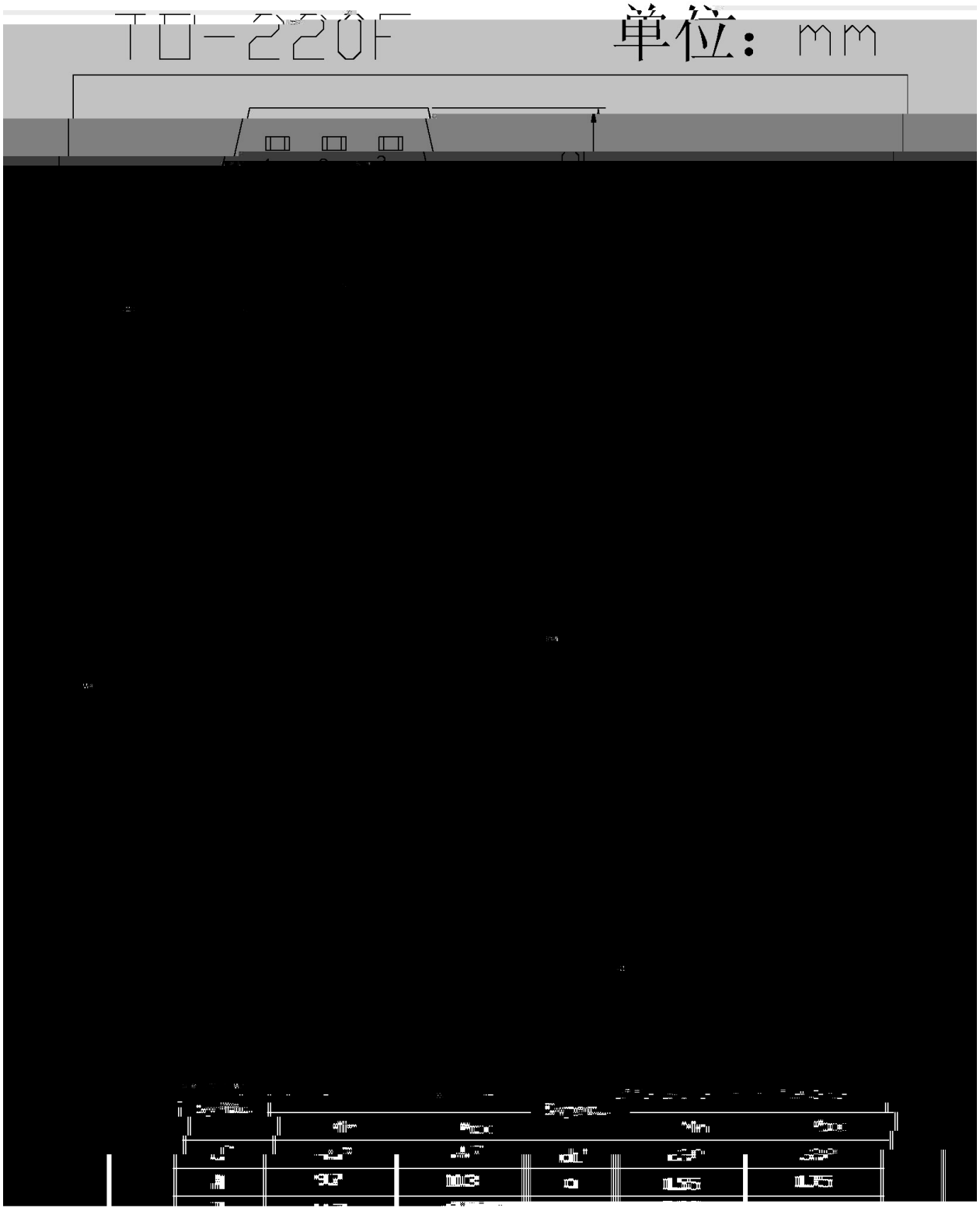
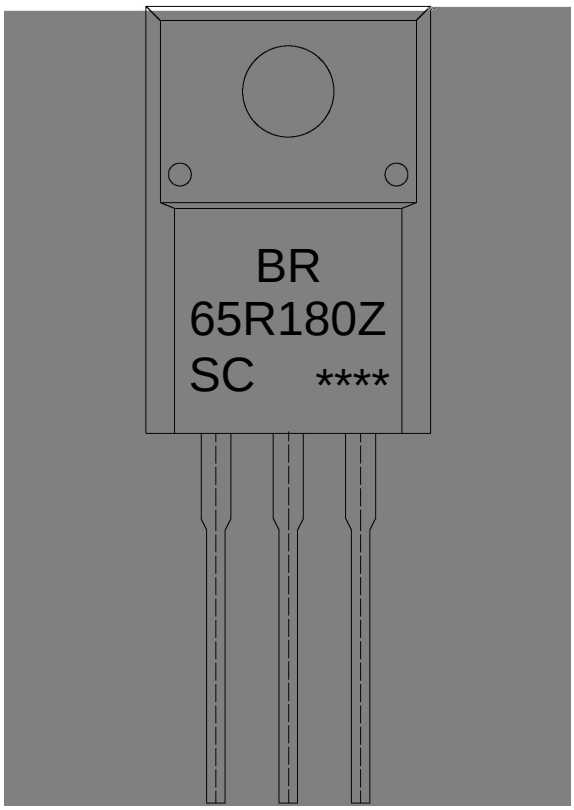


Fig24. Transient thermal resistance (MOSFET)

/ Package Dimensions



/ Marking Instructions



BR

65R180Z

SC

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Note:

BR:	Company Code
65R180Z:	Product Type Code
SC:	SiC
****:	Lot No. Code, code change with Lot No.

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