

/ Descriptions

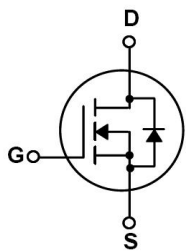
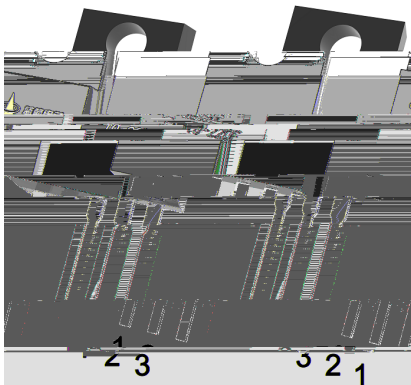
TO-220F SiC N MOS

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

/ Features $V_{DS}=800V$ $I_D=7A$ $R_{DS(on)}@15V \leq 650m\Omega$ (Type. 500m Ω) $R_{DS(on)}@18V \leq 600m\Omega$ (Type. 378m Ω)**/ 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.

BRSC80R600ZFA

Rev.B Jul.-2026



DATA SHEET

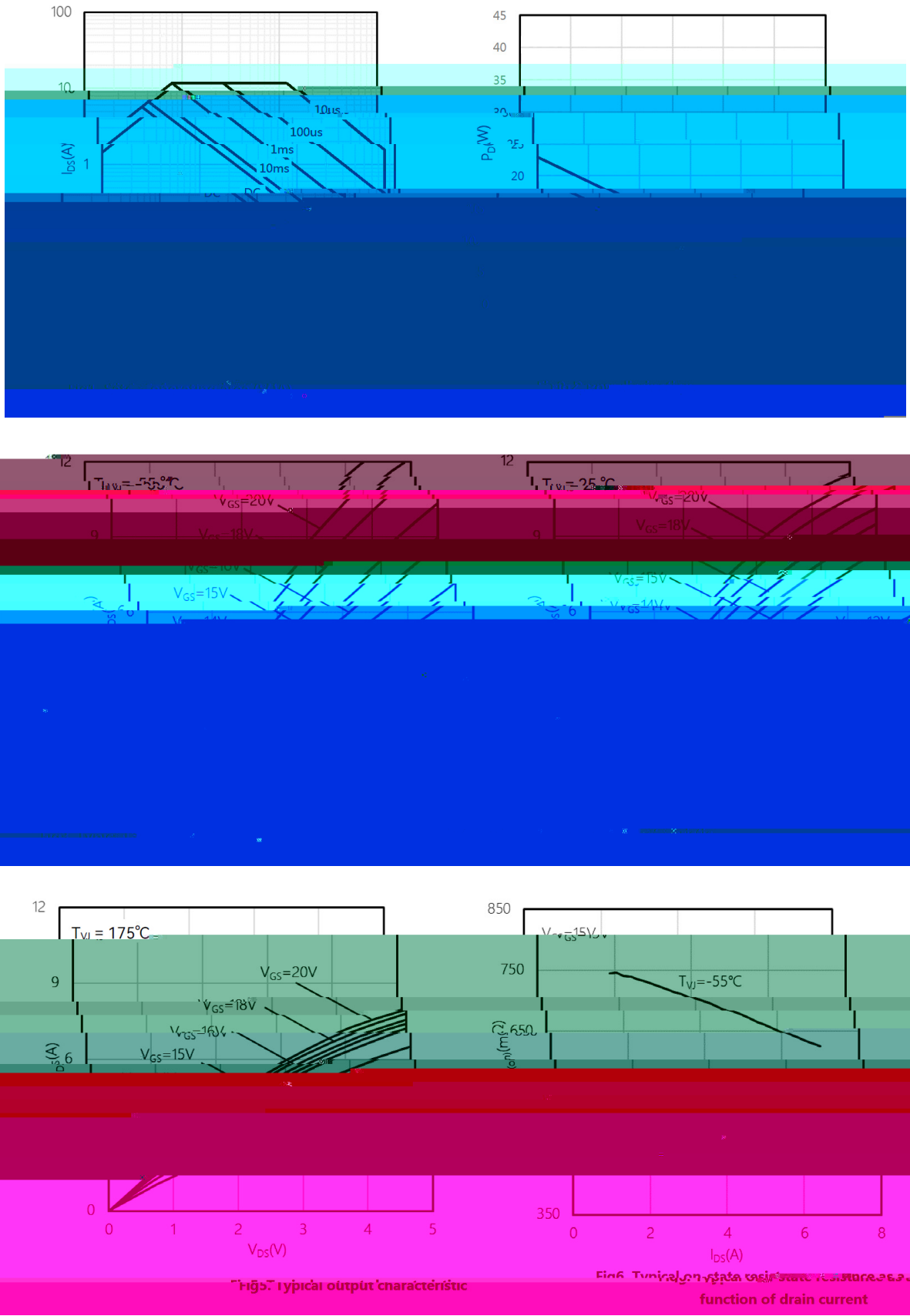
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	800	V
Continuous DC Drain Current for $R_{th(j-c,typ.)}$, Limited by $T_{VJ(max)}$	$I_D(T_c=25^\circ C)$	7	A
	$I_D(T_c=100^\circ C)$	5.7	A
Peak Drain Current, tp Limited by $T_{VJ(max)}$	I_{DM}	12	A
Gate-Source Max Voltage	$V_{GS,max}$	-10/+22	V
Gate-Source Operate Voltage	$V_{GS,op}$	0/+15	V
Single Pulse Avalanche Energy	E_{AS}	10.2	mJ
Power Dissipation or $R_{th(j-c,typ.)}$	$P_D(T_c=25^\circ C)$	23	W
Operating and Storage Temperature Range	T_{VJ}, T_{STG}	-55 to 175	
MOSFET/Body Diode Junction-Case Thermal Resistance	$R_{th(j-c)}$	6.52	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV					

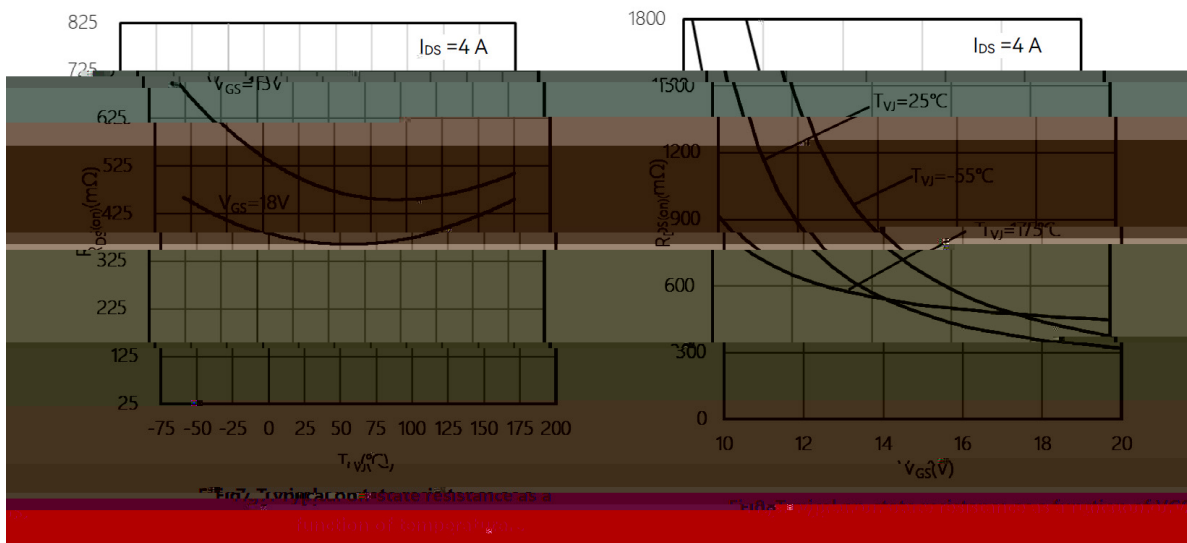
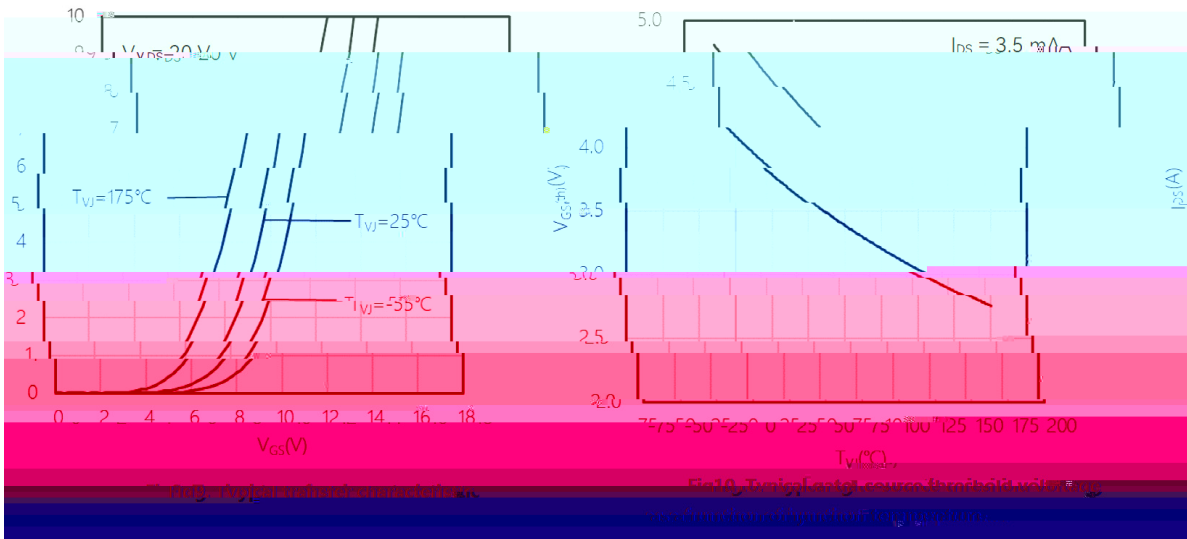
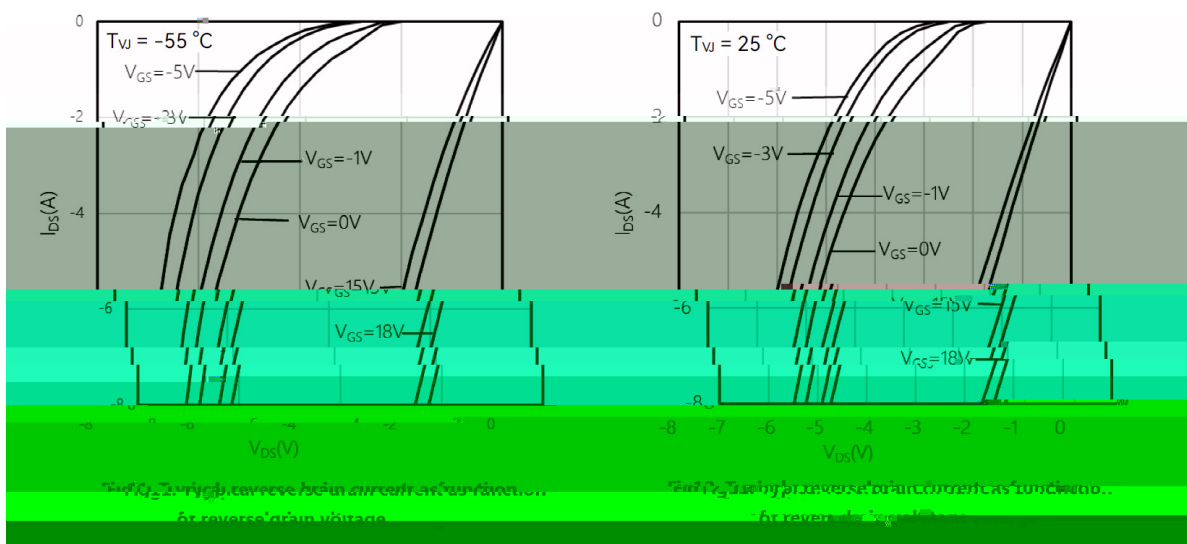
/ Electrical Characteristics(Tc=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=0/15V$ $L=600\mu H$ $V_{DD}=400V$ $I_D=4A$ $R_g=10\Omega$		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-On Switching Loss	E_{on}			41.2		μJ
Turn-Off Switching Loss	E_{off}			3.1		
Total Switching Energy	E_{tot}			44.3		
Gate resistance	R_g	$V_{AC}=25mV$ $f=1MHz$		35		Ω
Input Capacitance	C_{iss}	$V_{DS}=400V$ $V_{GS}=0V$ $f=1MHz$		149		pF
Output Capacitance	C_{oss}			11		
Reverse Transfer Capacitance	C_{rss}			0.8		
Total Gate Charge	Q_g	$V_{GS}=0/15V,$ $V_{DS}=400V,$ $I_D=4A$		6.7		nC
Gate Source Charge	Q_{gs}			3.0		
Gate Drain Charge	Q_{gd}			1.1		

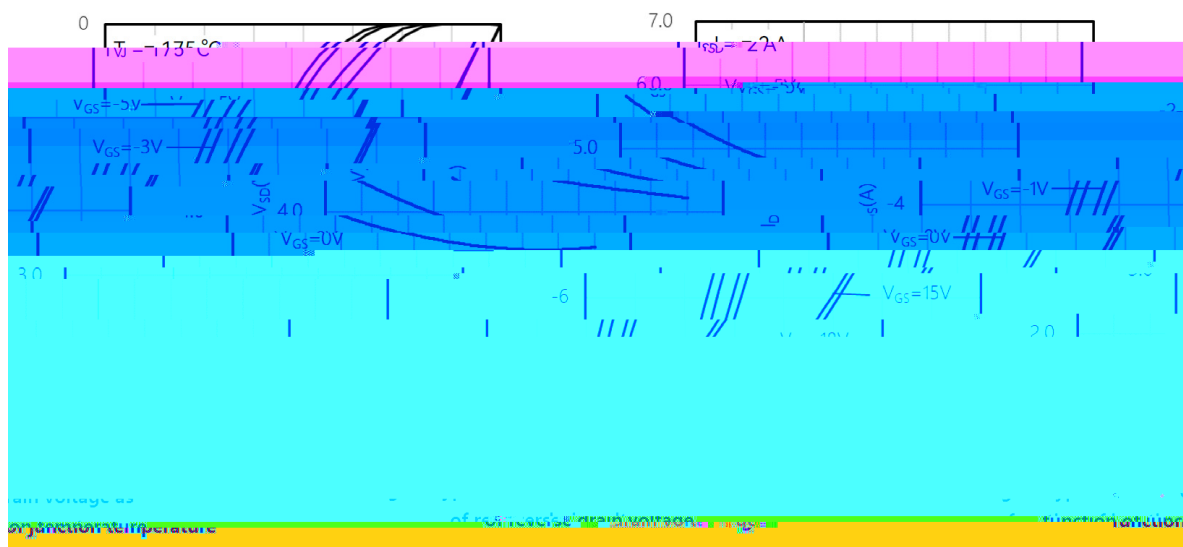
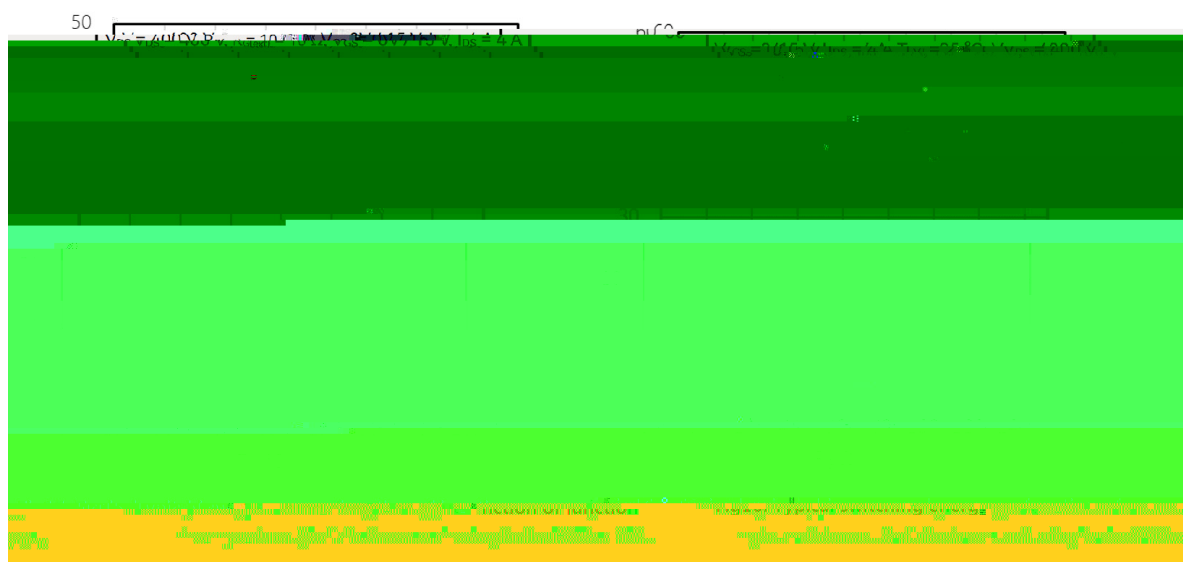
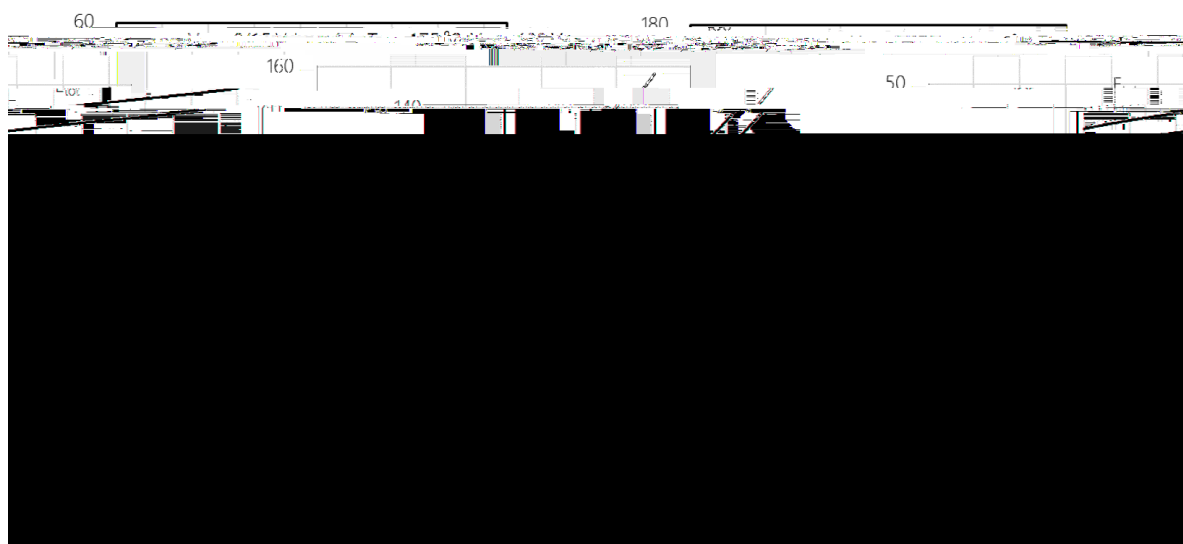
/ Electrical Characteristic Curve



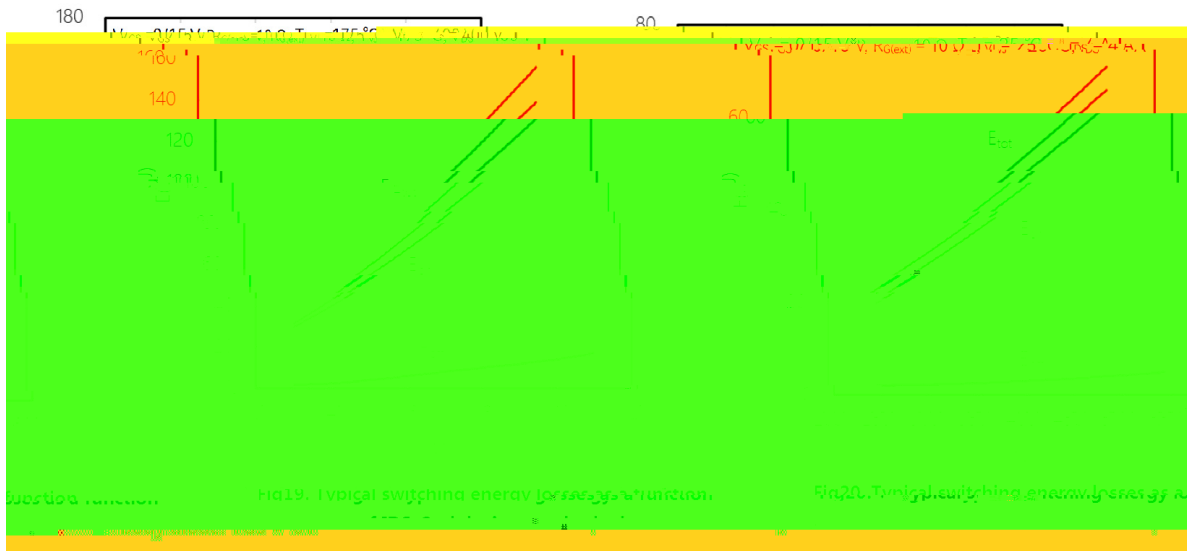
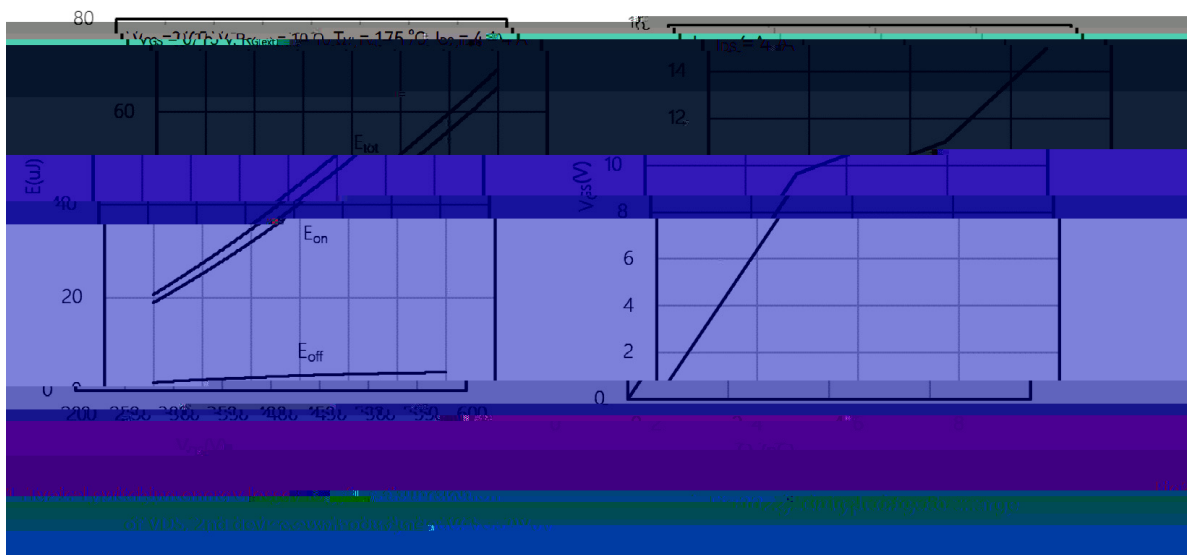
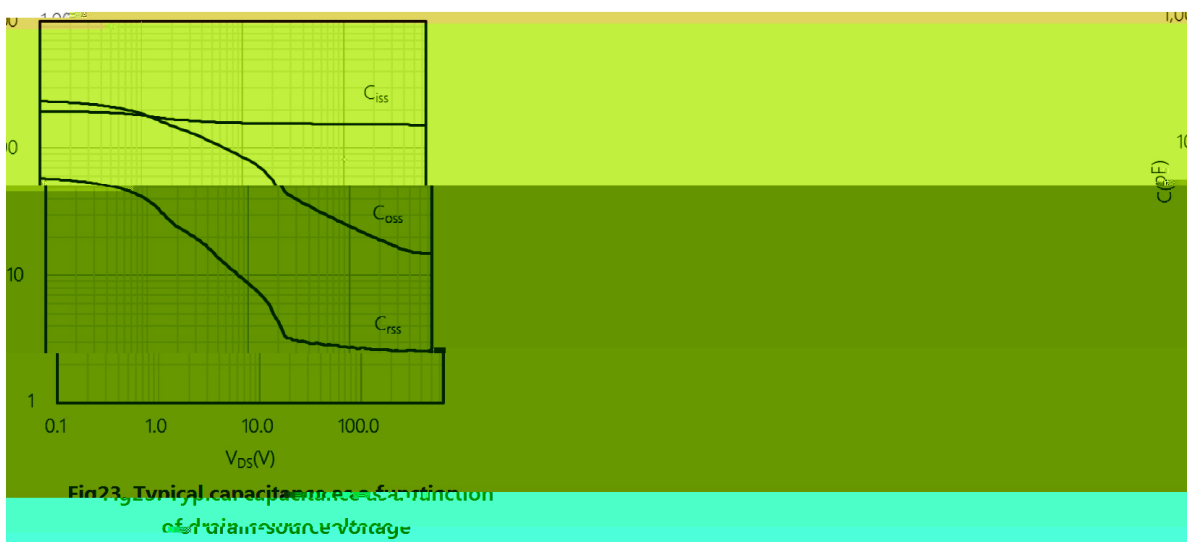
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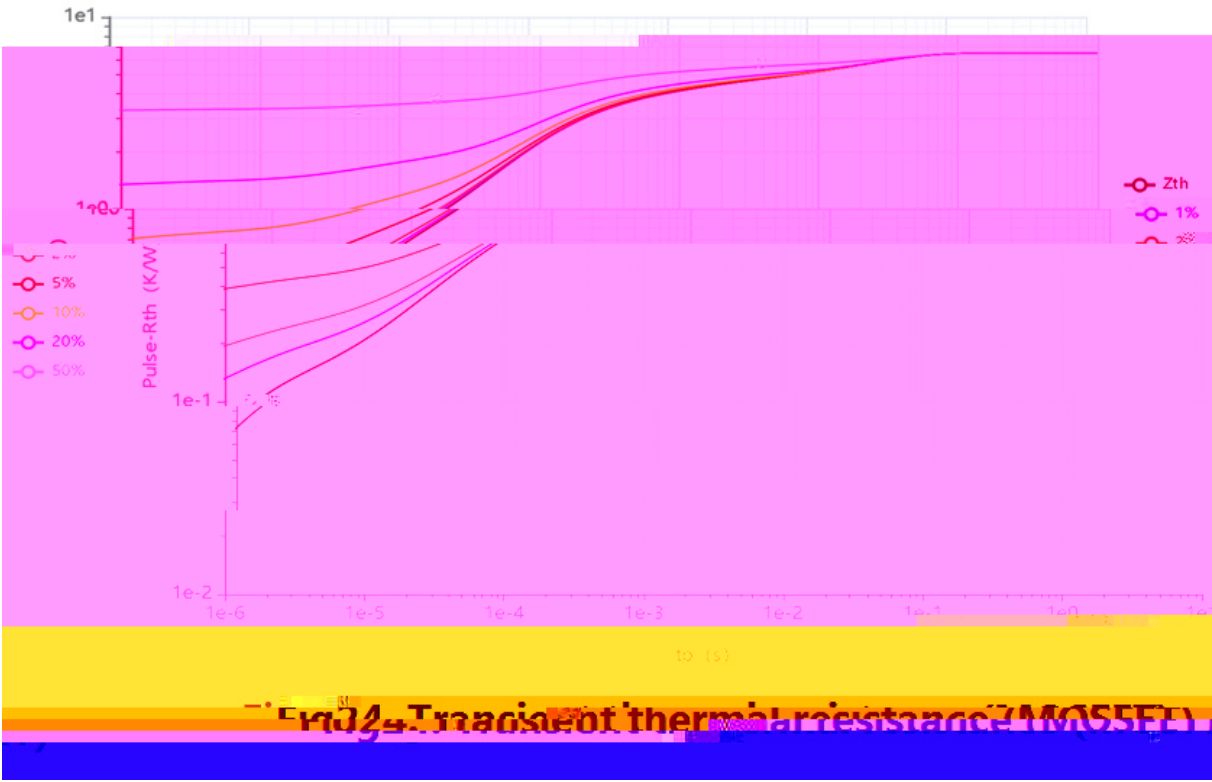
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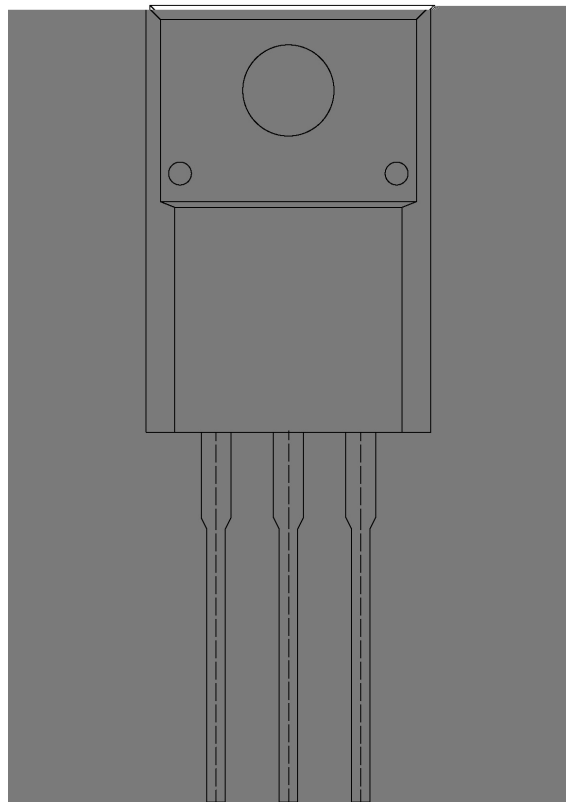


/ Package Dimensions

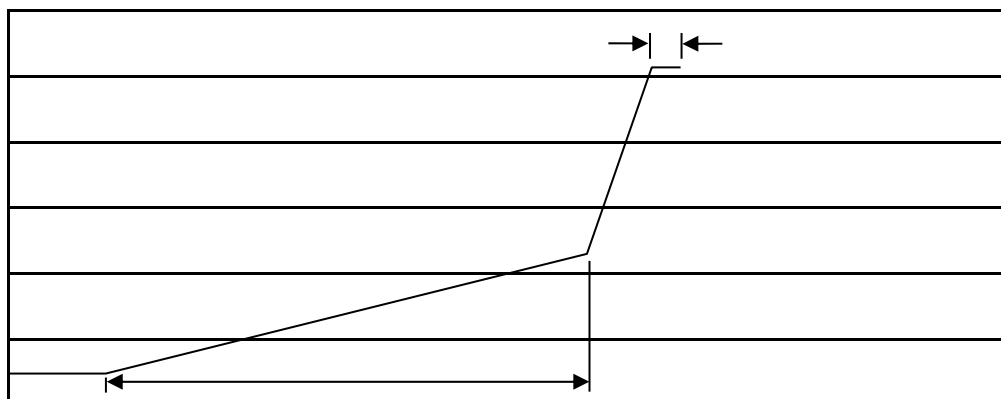




/ Marking Instructions



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



Note:

- 1 25 150 60 90sec;
- 2 255±5 5±0.5sec;
- 3 2 10 /sec.

- 1.Preheating:25~150 , Time:60~90sec.
- 2.Peak Temp.:255±5 , Duration:5±0.5sec.
3. Cooling Speed: 2~10 /sec.

/ In-line Package Resistance to Soldering Heat Test Conditions

270±5

10±1 sec.

Temp.:270±5

Time:10±1 sec

/ Packaging SPEC.

/ BULK

Package Type	Units					Dimension (unit mm ³)		
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
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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