/ Descriptions

TO-252 SiC N MOS

SiC N-CHANNEL MOSFET in a TO-252 Plastic Package.

/ Features

V_{DS}=800V I_D=15.4A

$R_{DS(on)}$@15V 280m (Type.215m)

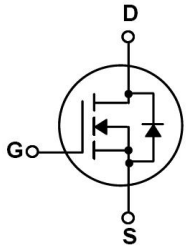
$R_{DS(on)}$@18V 260m (Type.176m)

/ Applications

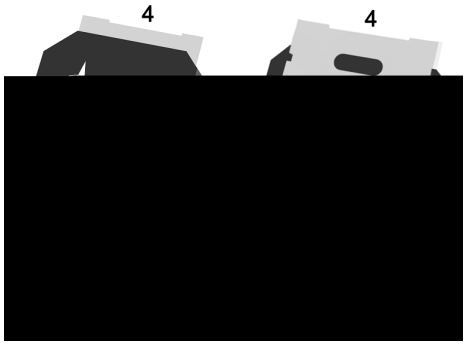
LED PD PC

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

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

See Marking Instructions.

=175

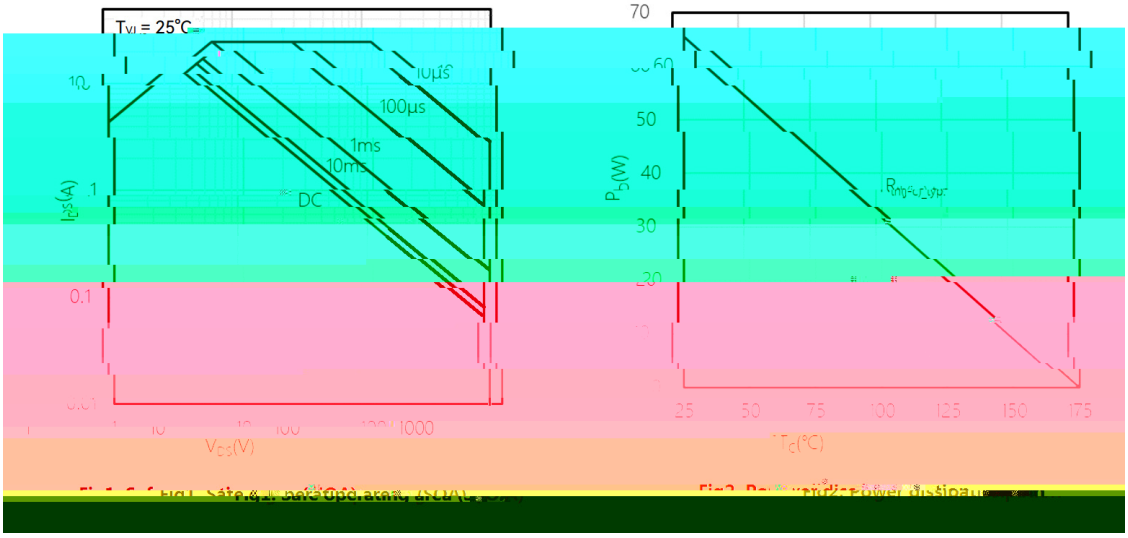
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	800	V
Continuous DC Drain Current for $R_{th(j-c,typ.)}$, Limited by $T_{VJ(max)}$	I_D(Tc=25)	15.4	A
	I_D(Tc=100)	10.9	A
Peak Drain Current, tp Limited by $T_{VJ(max)}$	I_{DM}	24.5	A
Gate-Source Max Voltage	$V_{GS,max}$	-10/+22	V
Gate-Source Operate Voltage	$V_{GS,op}$	0/+15	V
Single Pulse Avalanche Energy	E_{AS}	23	mJ
Power Dissipation or $R_{th(j-c,typ.)}$	P_D(Tc=25)	65.5	W
Operating and Storage Temperature Range	T_{VJ},T_{STG}	-55 to 175	
MOSFET/Body Diode Junction-Case Thermal Resistance	$R_{th(j-c)}$	2.29	/W

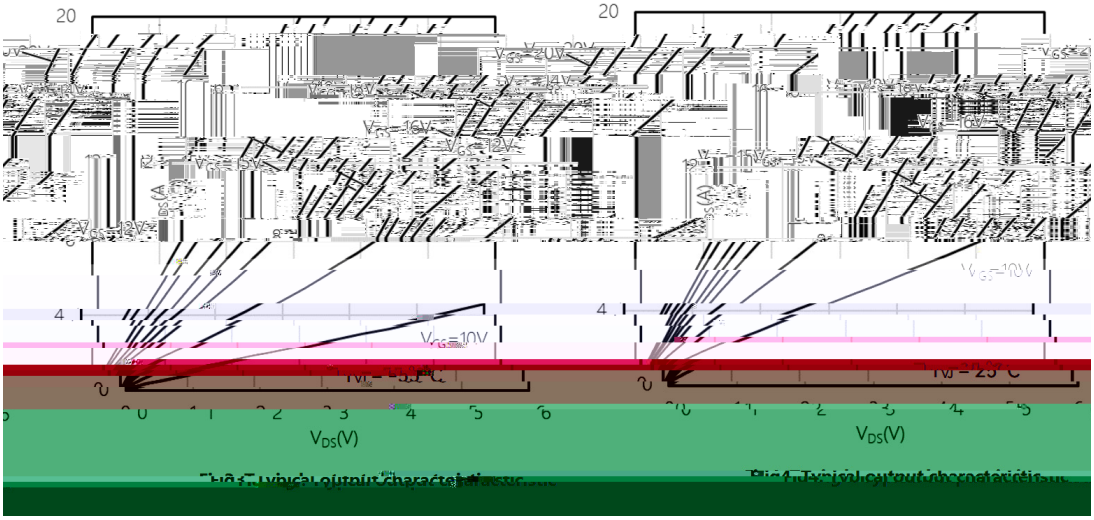
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=1mA	800			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=3.5mA	2		4	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=800V V_{GS}=0V		0.1	20	A
Gate-Source Leakage Current	I_{GSS}	V_{GS}=22V V_{DS}=0V			250	nA
Source-Gate Leakage Current	I_{SGS}	V_{GS}=-10V V_{DS}=0V			250	nA
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=15V I_D=8A		215	280	m
		V_{GS}=15V I_D=8A T_{VJ}=175		229		
		V_{GS}=18V I_D=8A		176	260	

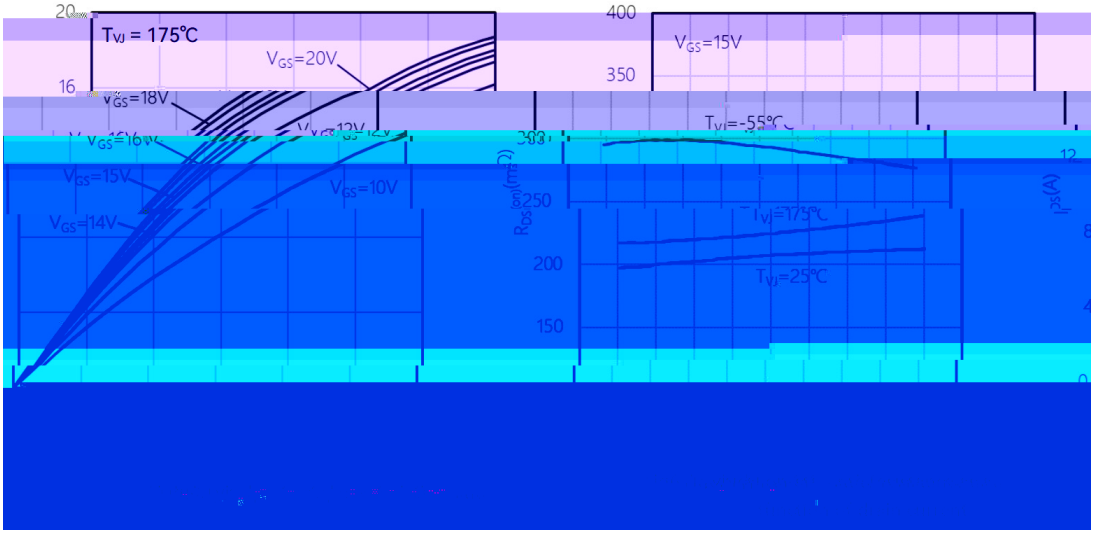
/ Electrical Characteristics(Tc=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=0/15V L=600 H V_{DD}=400V I_D=8A R_g=4.3Ω		20.4		ns
Turn-On Rise Time	t_r			11.9		
Turn-Off Delay Time	$t_{d(off)}$			17.2		
Turn-Off Fall Time	t_f			11.7		
Turn On Switching Loss	E_{on}			79.2		J
Turn Off Switching Loss	E_{off}			13.3		
Total Switching Energy	E_{tot}			92.5		
Gate resistance	R_g	V_{AC}=25mV f=1MHz		23		
Input Capacitance	C_{iss}	V_{DS}=400V V_{GS}=0V f=1MHz		289		pF
Output Capacitance	C_{oss}			23		
Reverse Transfer Capacitance	C_{rss}			2.1		
Total Gate Charge	Q_g	V_{GS}=0/15V, V_{DS}=400V, I_D=10A		12.5		nC
Gate Source Charge	Q_{gs}			4.5		
Gate Drain Charge	Q_{gd}			1.5		

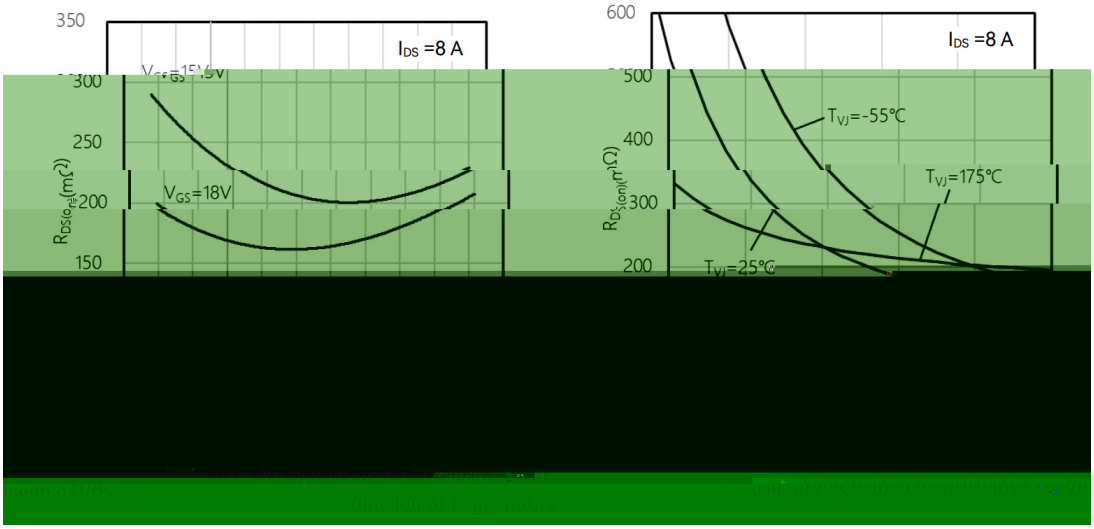
/ Electrical Characteristic Curve

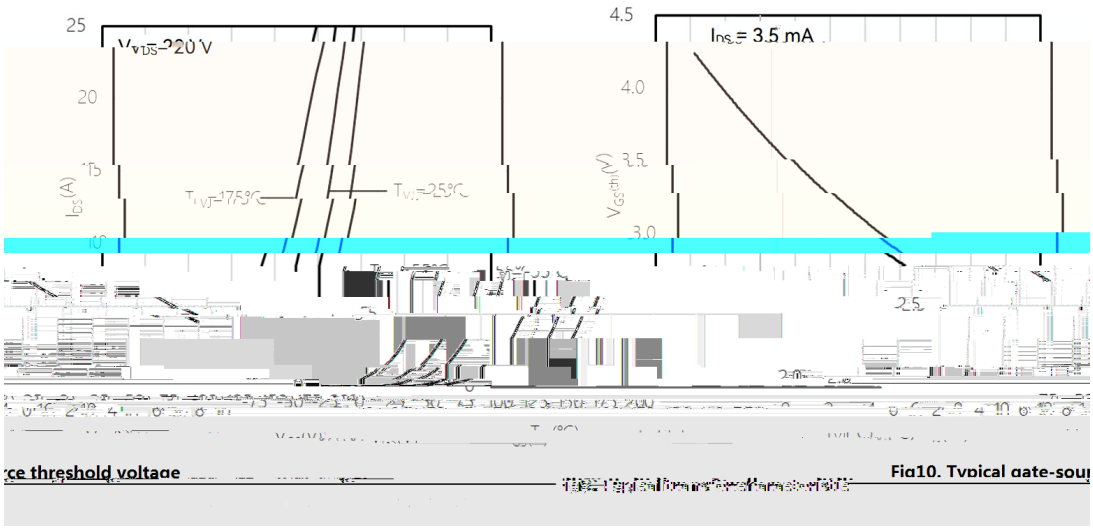




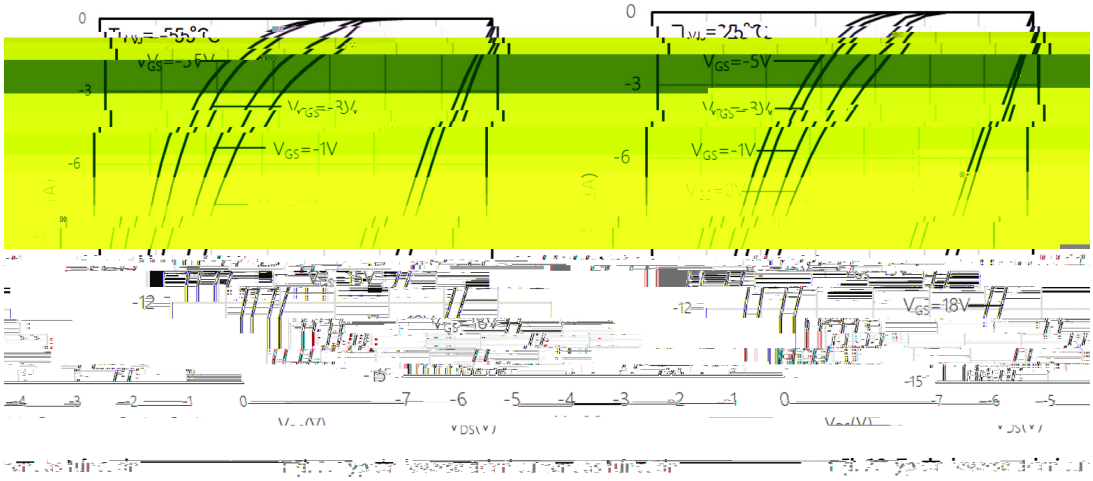


/ Electrical Characteristic Curve



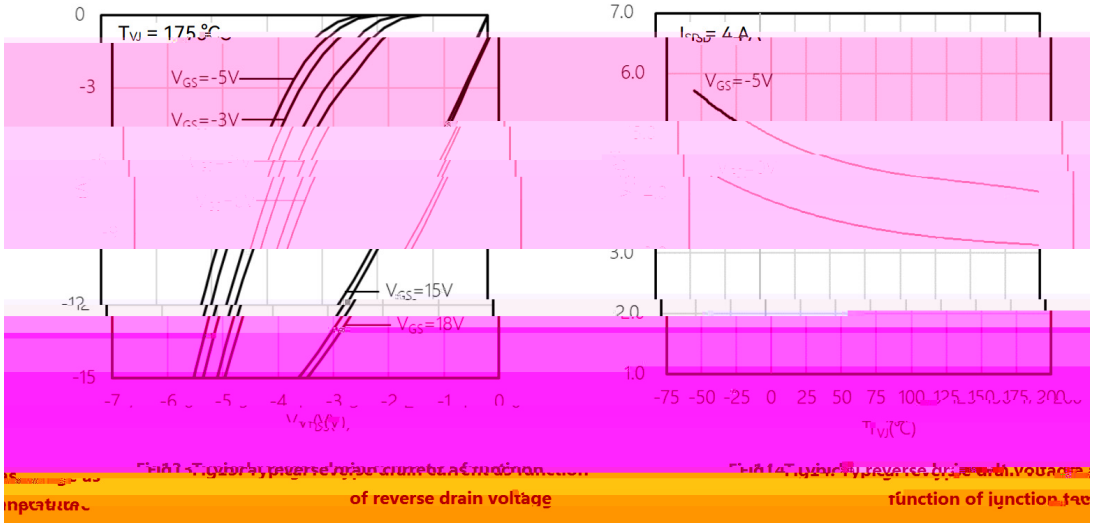


ce threshold voltage — Fig10. Typical gate-sou



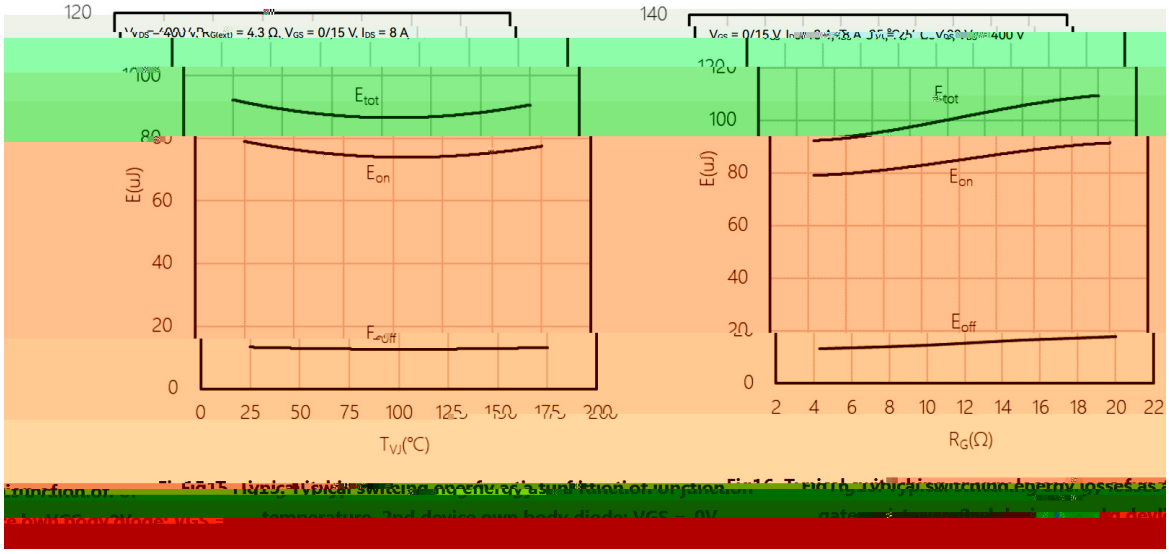
ltage — of reverse drain voltage — of reverse drain vol

/ Electrical Characteristic Curve

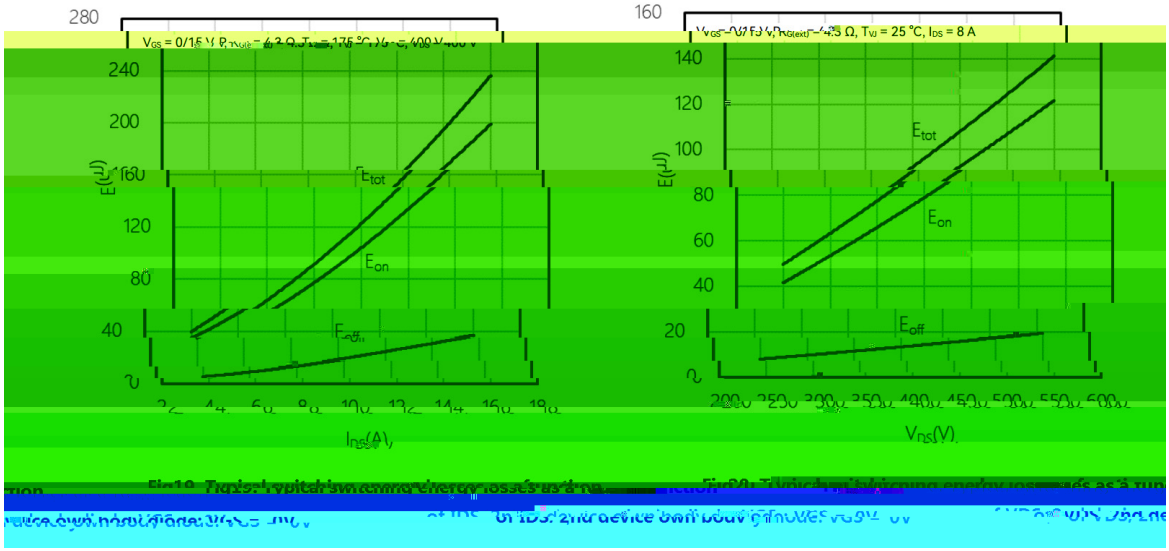


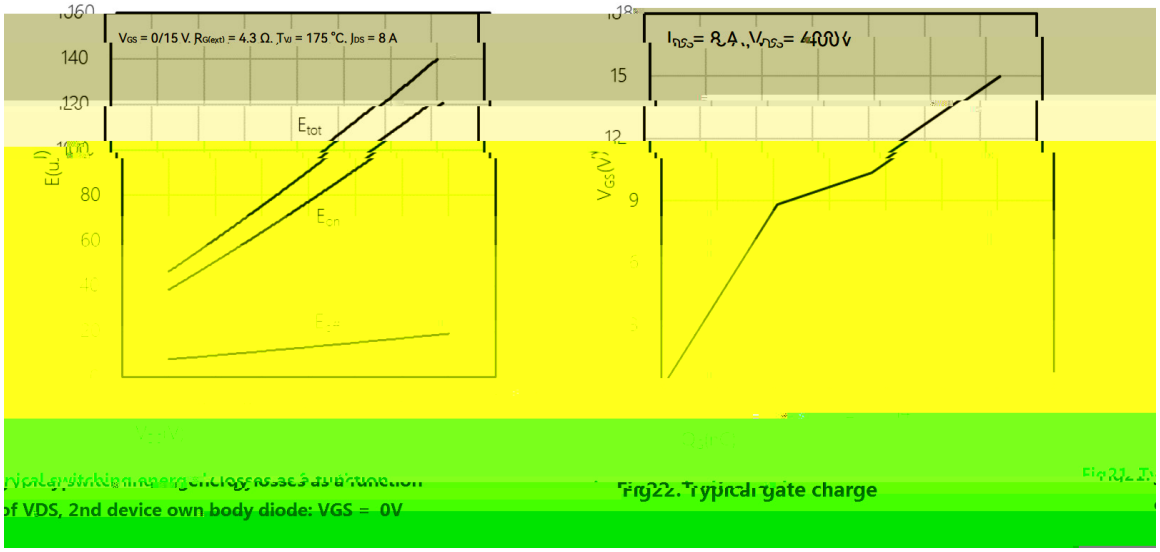
of reverse drain voltage

function of junction tem



/ Electrical Characteristic Curve





of VDS, 2nd device own body diode: VGS = 0V

Fig22. Typical gate charge

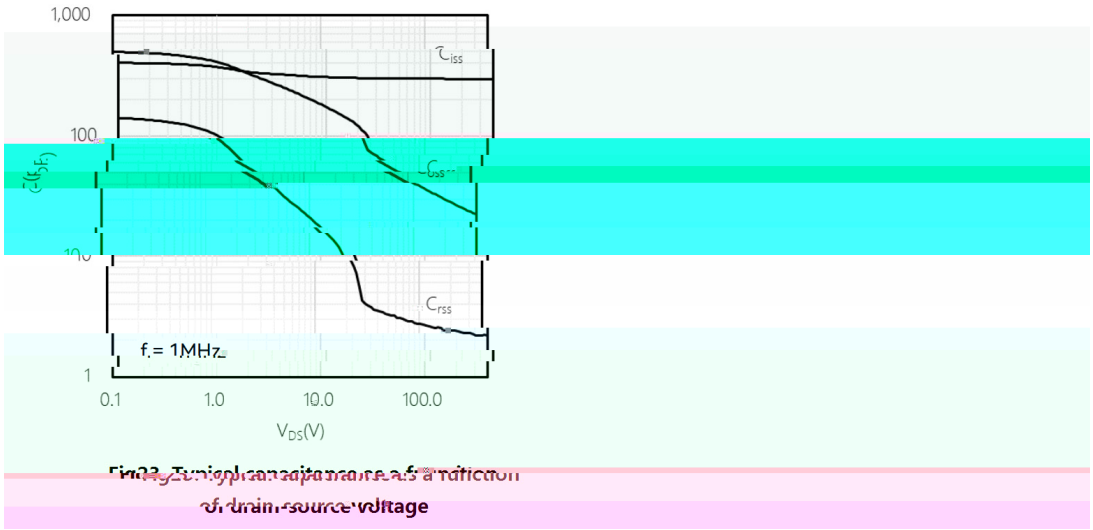
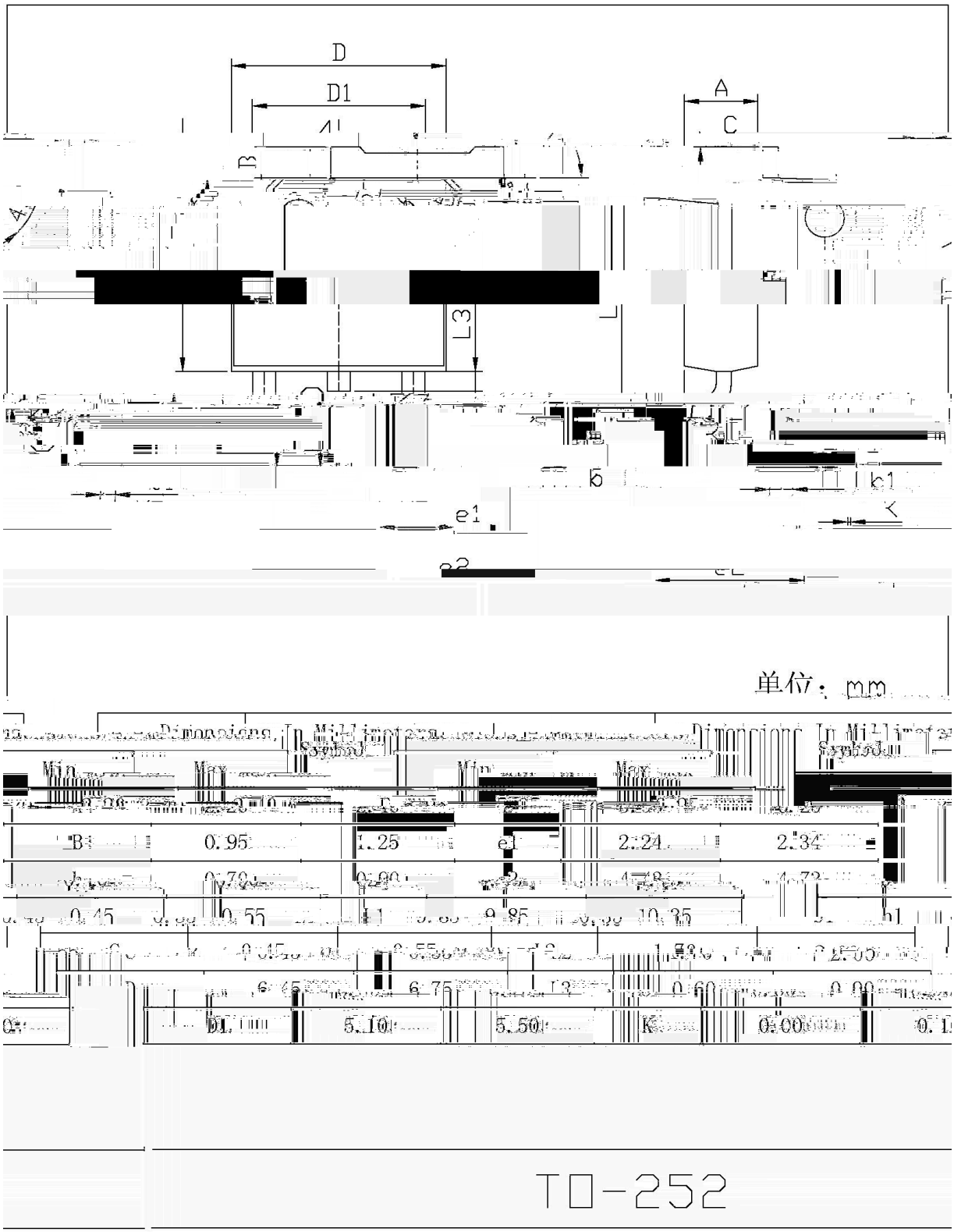
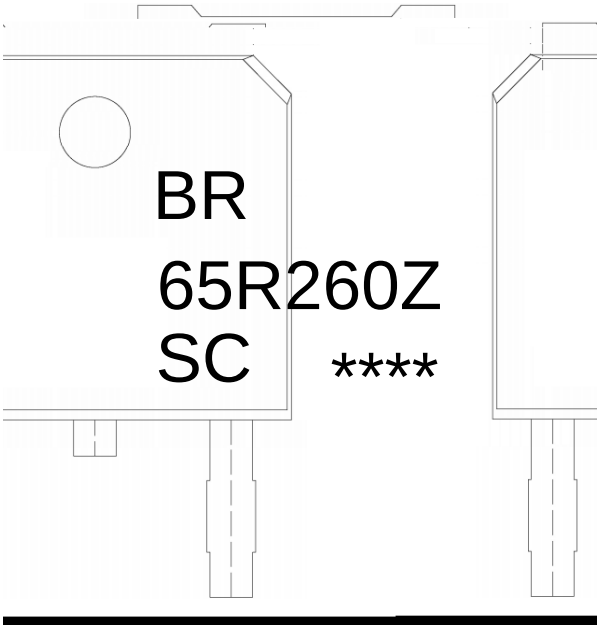


Fig23. Typical capacitance as a function of drain-source voltage

/ Package Dimensions



/ Marking Instructions



BR

65R260Z

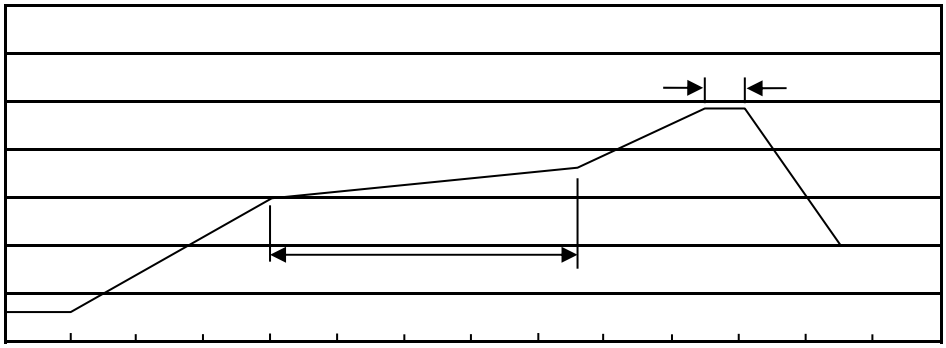
SC

****

Note:

BR:	Company Code
65R260Z:	Product Type Code
SC:	SiC
****:	Lot No. Code, code change with Lot No.

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



				Note:
1	150	180	60 90sec;	1.Preheating:150~180 , Time:60~90sec.
2	245±5		5±0.5sec;	2.Peak Temp.:245±5 , Duration:5±0.5sec.
3		2 10	/sec.	3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5	10±1 sec.	Temp.:260±5	Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension		(unit mm³)
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension		(unit mm³)
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices

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