/ Descriptions

TO-252 SiC N MOS

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

/ Features

V_{DS}=800V I_D=20A

$R_{DS(on)}$@15V≤208mΩ(Type.160mΩ)

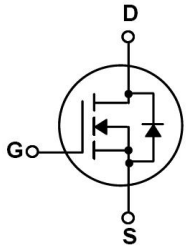
$R_{DS(on)}$@18V≤180mΩ(Type.124mΩ)

/ Applications

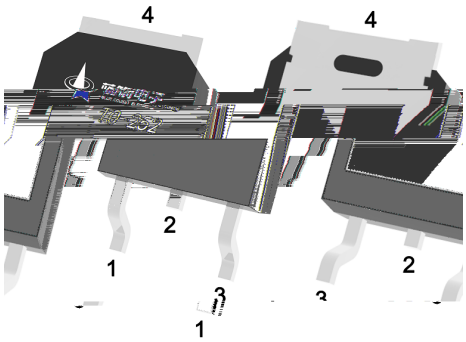
LED PD PC

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

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

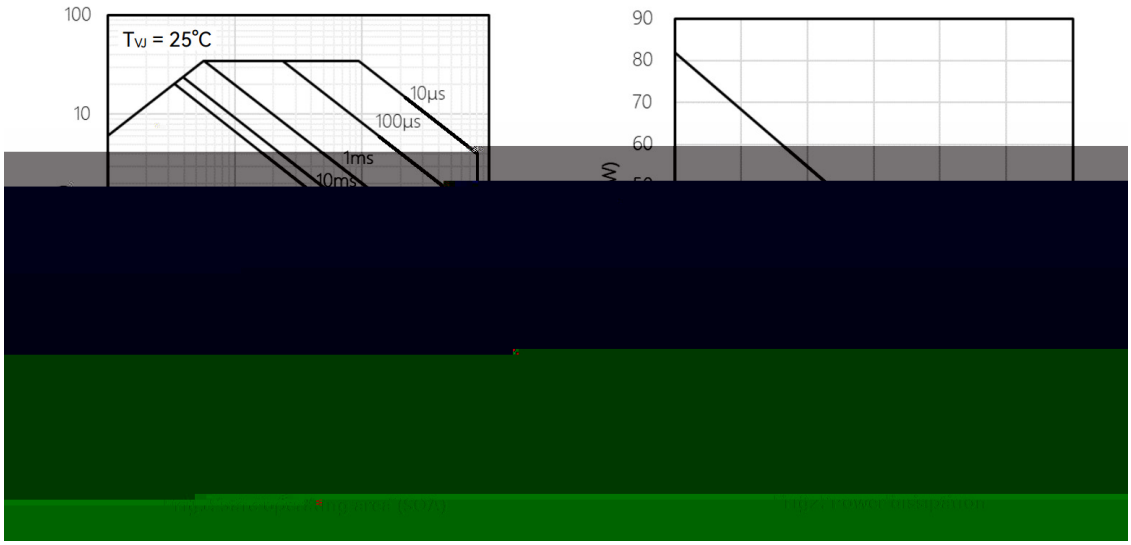
See Marking Instructions.

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)	20	A
	I_D(Tc=100)	14.4	A
Peak Drain Current, tp Limited by T			

/ Electrical Characteristics(Tc=25)

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=2.2Ω		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
Turn−Off Switching Loss	E_{off}			24		
Total Switching Energy	E_{tot}			130		
Gate resistance	R_g	V_{AC}=25mV f=1MHz		28.5		Ω
Input Capacitance	C_{iss}	V_{DS}=400V V_{GS}=0V f=1MHz		438		pF
Output Capacitance	C_{oss}			30		
Reverse Transfer Capacitance	C_{rss}			2.7		
Total Gate Charge	Q_g	V_{GS}=0/15V, V_{DS}=400V, I_D=10A		14.5		nC
Gate Source Charge	Q_{gs}			5.5		
Gate Drain Charge	Q_{gd}			2.2		

/ Electrical Characteristic Curve



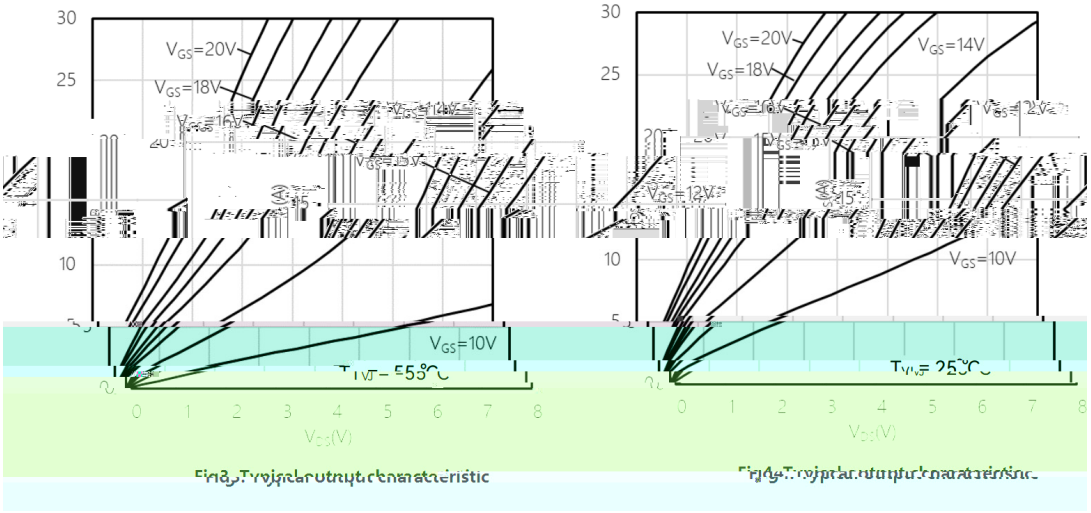


Fig3. Typical output characteristic

Fig4. Typical output characteristic

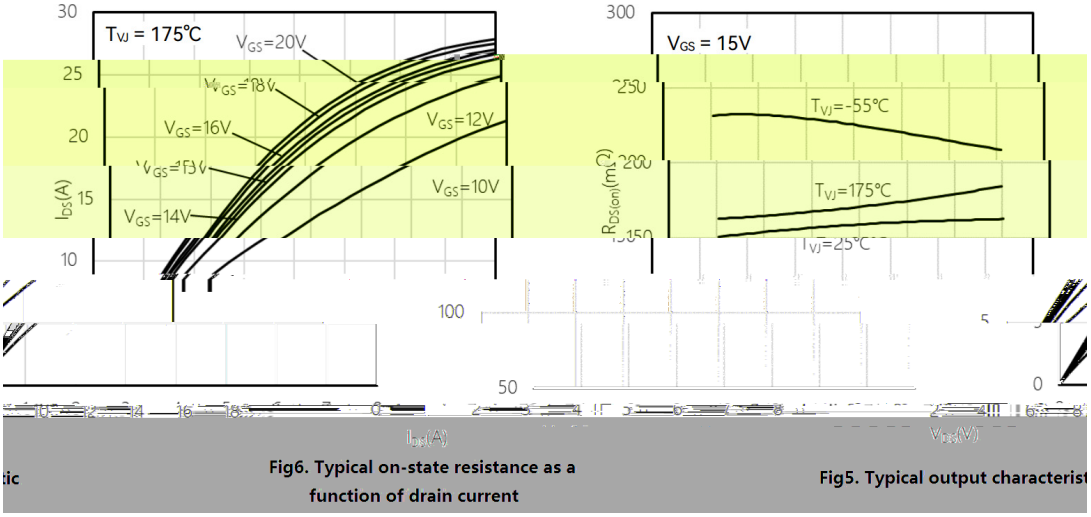
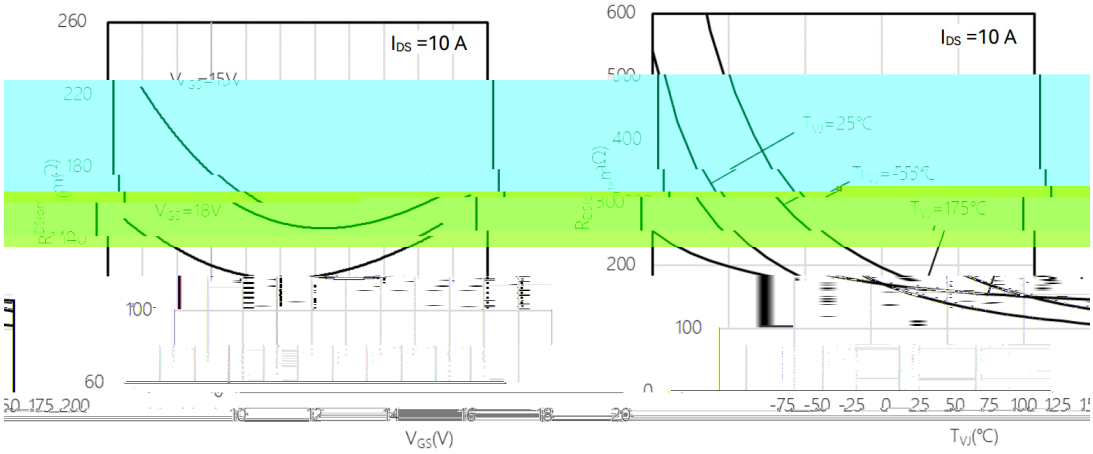


Fig6. Typical on-state resistance as a function of drain current

Fig5. Typical output characteris

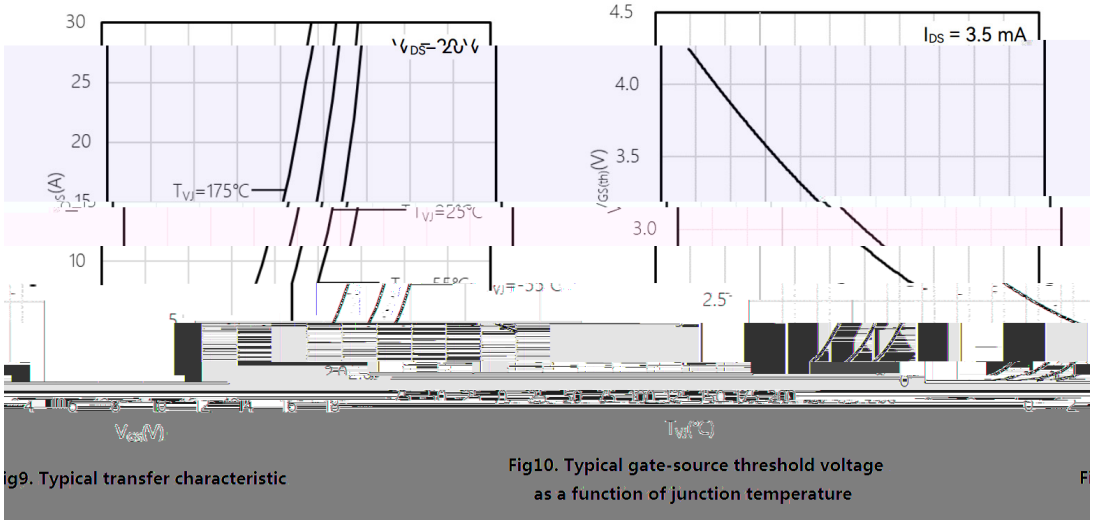
/ Electrical Characteristic Curve



as a

Fig8. Typical on-state resistance as a function of VGS

Fig7. Typical on-state resistance function of temperature



g9. Typical transfer characteristic

Fig10. Typical gate-source threshold voltage as a function of junction temperature

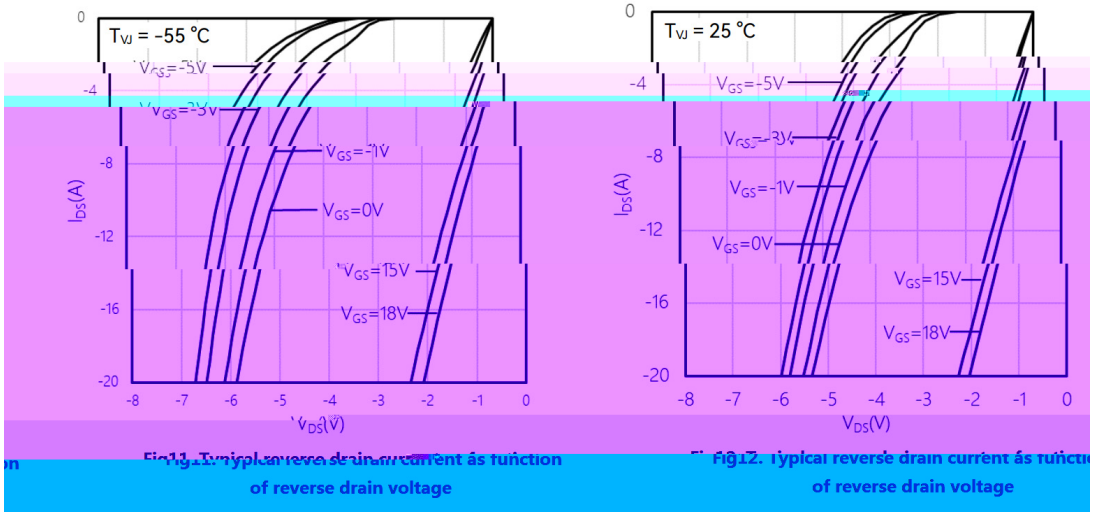


Fig11. Typical reverse drain current as function of reverse drain voltage

Fig12. Typical reverse drain current as function of reverse drain voltage

/ Electrical Characteristic Curve

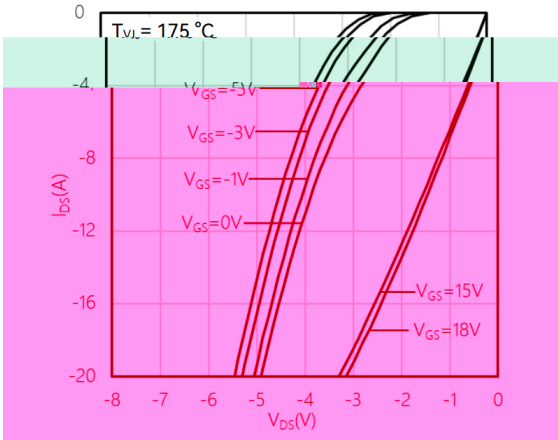


Fig13. Typical reverse drain current as function of reverse drain voltage

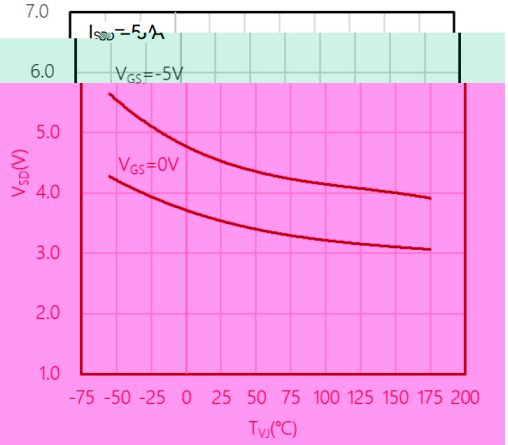
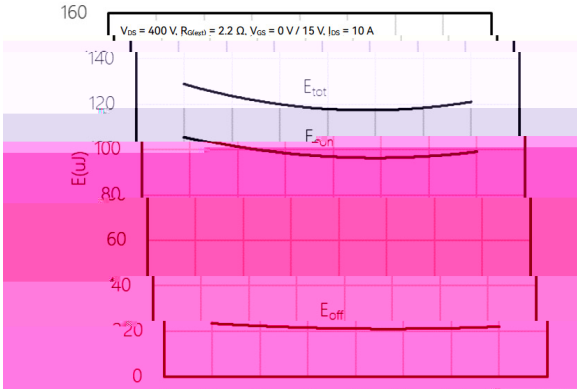
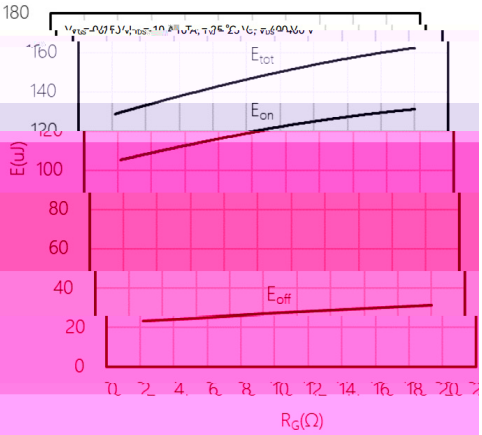
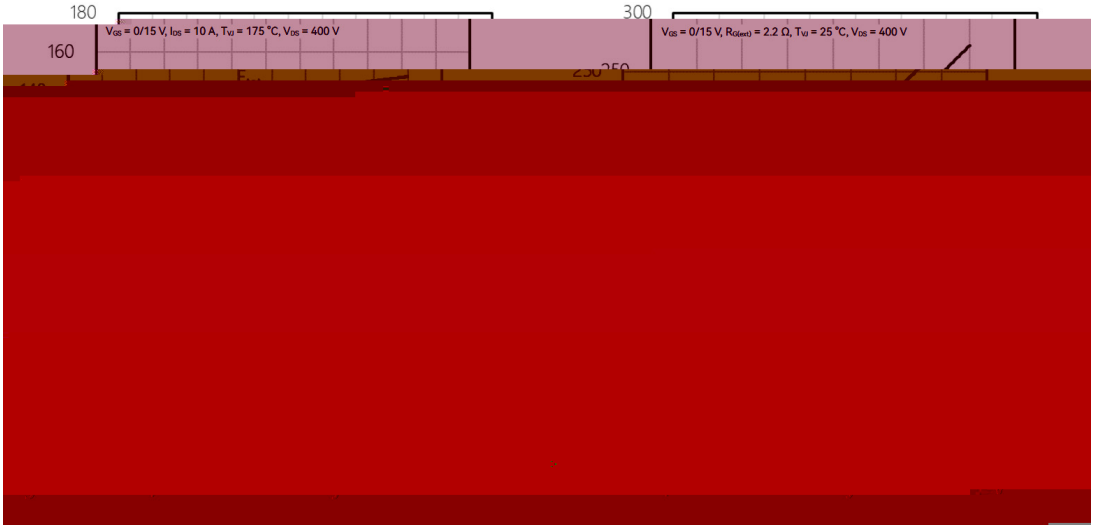


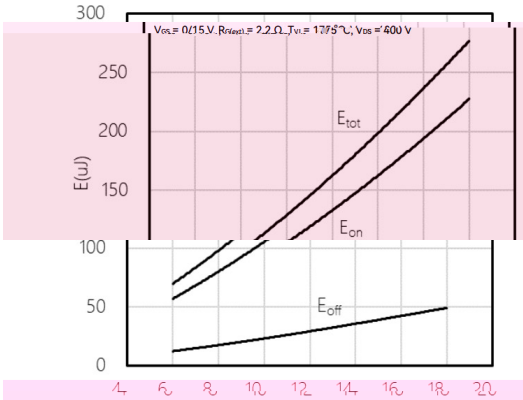
Fig14. Typical reverse drain voltage as function of junction temperature







/ Electrical Characteristic Curve



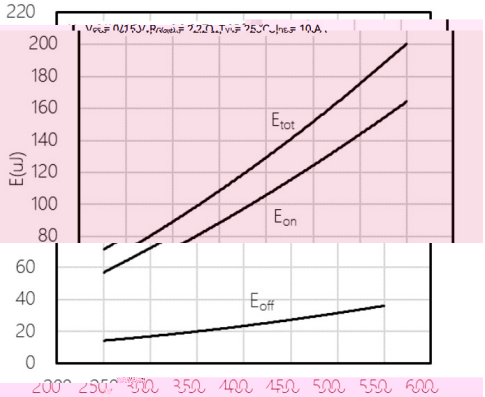
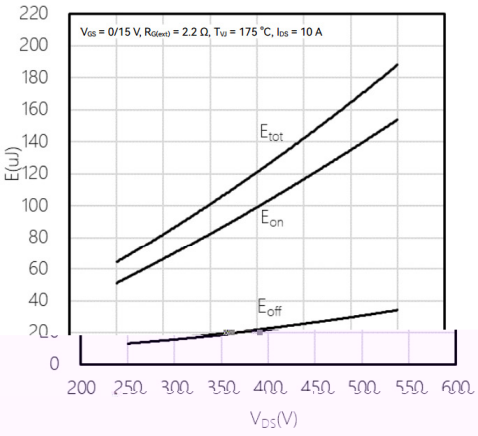


Fig10. Typical switching energy losses as a function of ID

Fig11. Typical switching energy losses as a function of VDS, 2nd device own body diode: VGS = -5V



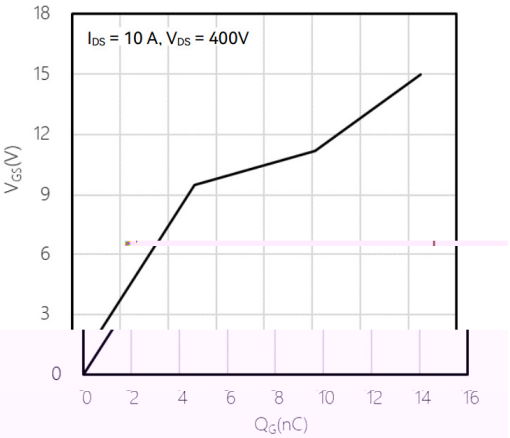


Fig12. Typical switching energy losses as a function of VDS, 2nd device own body diode: VGS = -5V

Fig12. Typical gate charge

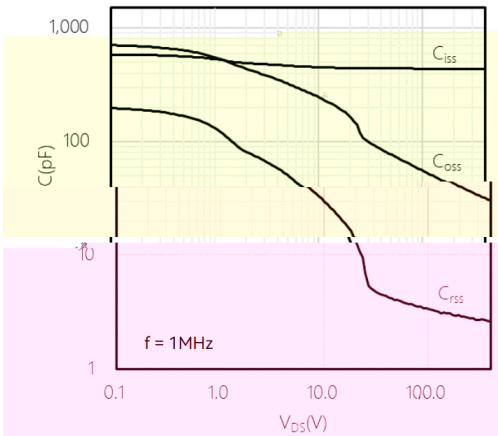


Fig23. Typical capacitance as a function of drain-source voltage

/ Electrical Characteristic Curve

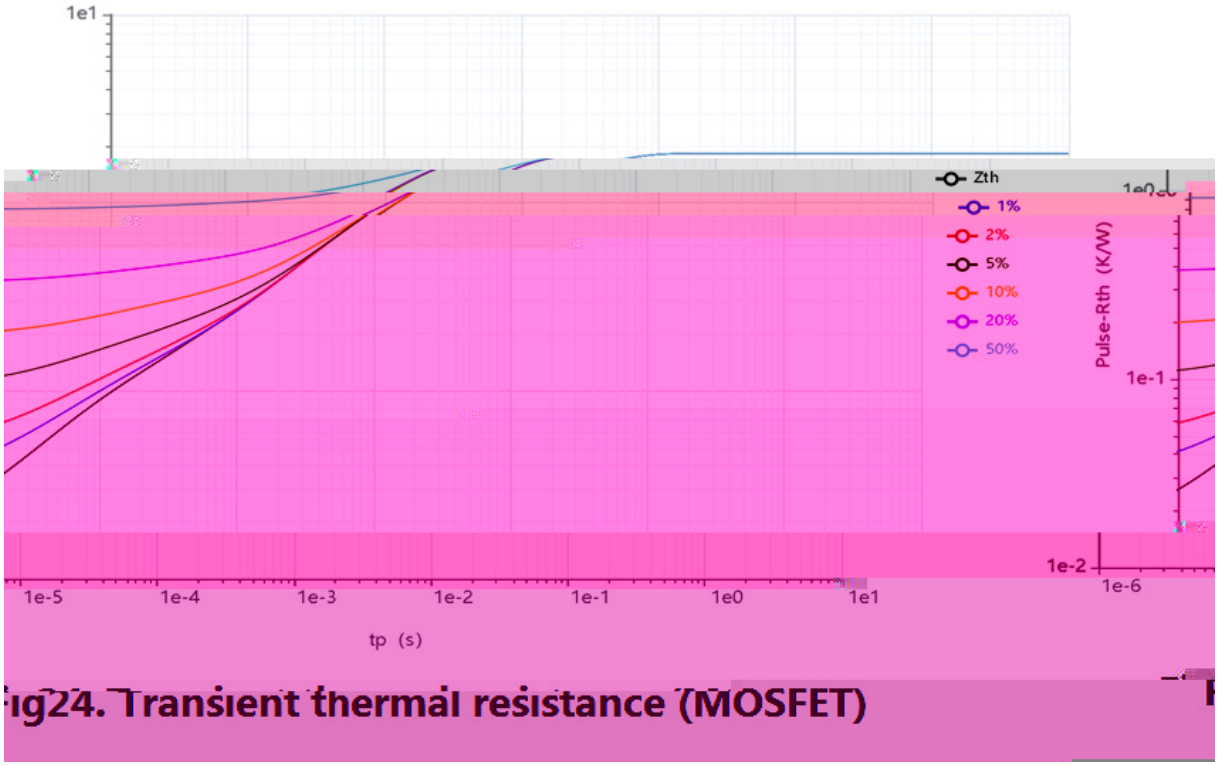
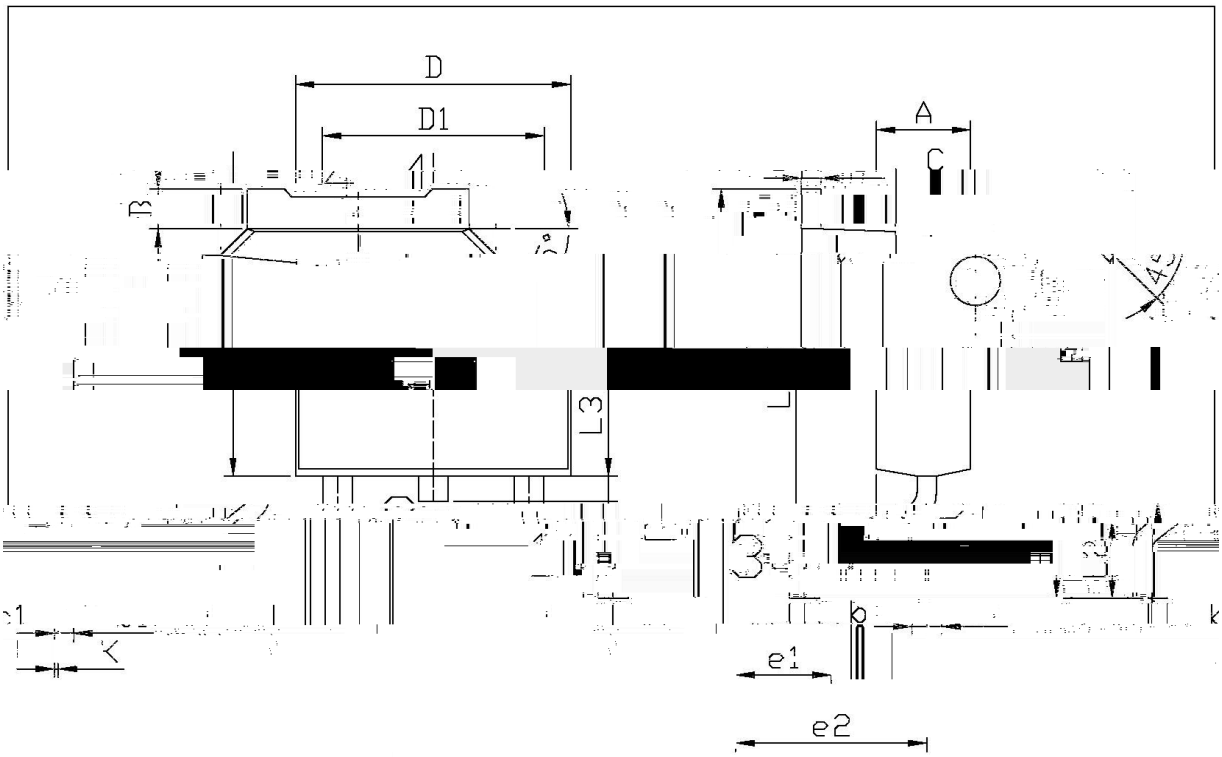


Fig24. Transient thermal resistance (MOSFET)

/ Package Dimensions

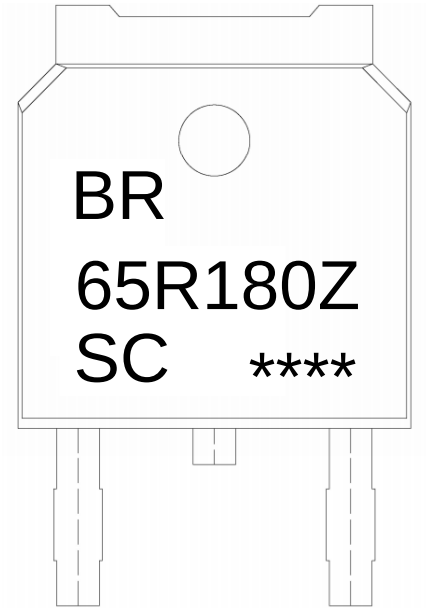


单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
E	5.95	6.25	A	2.20	2.40
e	2.24	2.34	B		0.95
e2	4.48	4.72	b	0.70	
D1	9.85	10.35	b1	0.45	0.55
C	0.45	0.55			
L3	0.60	0.90	D	6.45	6.75
K	0.00	0.10			

TO-252

/ Marking Instructions



BR

65R180Z

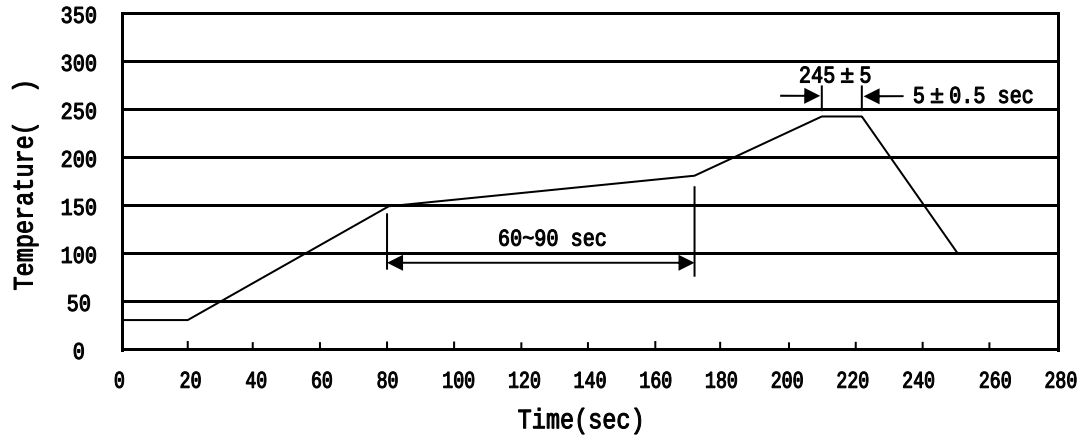
SC

****

Note:

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

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



1		150	180		60	90sec;	
2		245±5				5±0.5sec;	
3				2	10	/sec.	

Note:

1.Preheating:150~180 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

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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