

Rev.C Jul.-2026

TO-252 N MOS

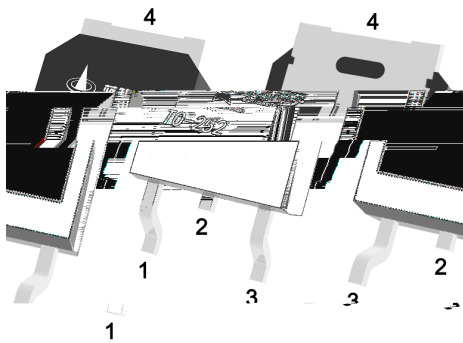
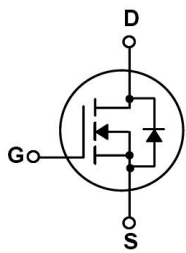
SiC N-CHANNEL MOSFET in a TO-252 Plastic Package.

$V_{DS}=650V$ $I_D=10A$

$R_{DS(on)}@15V \leq 390m\Omega$ (Type.300m Ω)

$R_{DS(on)}@18V \leq 380m\Omega$ (Type.222m Ω)

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



PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

See Marking Instructions.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	650	V
Continuous DC Drain Current for $R_{th(j-c,typ.)}$, Limited by $T_{VJ(max)}$	$I_D(T_c=25^\circ C)$	10	A
	$I_D(T_c=100^\circ C)$	8.5	A
Peak Drain Current, tp Limited by $T_{VJ(max)}$	I_{DM}	18	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}	17	mJ
Power Dissipation or $R_{th(j-c,typ.)}$	$P_D(T_c=25^\circ C)$	57	W
Operating and Storage Temperature Range	T_{VJ}, T_{STG}	-55 to 175	
MOSFET/Body Diode Junction-Case Thermal Resistance	$R_{th(j-c)}$	2.63	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=100\mu A$	650			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=3.5mA$	2		4	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=650V$ $V_{GS}=0V$		0.1	20	μA
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	$R_{DS(on)}$	$V_{GS}=15V$ $I_D=5A$		300	390	m Ω
		$V_{GS}=15V$ $I_D=5A$ $T_{VJ}=175$		321		
		$V_{GS}=18V$ $I_D=5A$		222	380	
		$V_{GS}=18V$ $I_D=5A$ $T_{VJ}=175$		266		
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=2.5A$		3.6		V
Continuous DC Source Current	I_S			9.7		A
Peak Reverse Drain Current,	I_{SM}			17		A
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V, I_{SD}=5A, V_R=400V, di/dt=1.1kA/us$		10.9		ns
Reverse Recovery Charge	Q_{rr}			28		nC
Peak Reverse Recovery Current	I_{rrm}			3.9		A
Reverse Recovery Energy	E_{rr}			0.22		μJ

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=0/15V$ $L=600\mu H$ $V_{DD}=400V$ $I_D=5A$ $R_g=4.3\Omega$		16.5		ns
Turn-On Rise Time	t_r			11.3		
Turn-Off Delay Time	$t_{d(off)}$			21.2		
Turn-Off Fall Time	t_f			12.7		
Turn-On Switching Loss	E_{on}			47.6		μJ
Turn-Off Switching Loss	E_{off}			4.0		
Total Switching Energy	E_{tot}			51.6		
Gate resistance	R_g	$V_{AC}=25mV$ $f=1MHz$		26		Ω
Input Capacitance	C_{iss}	$V_{DS}=400V$ $V_{GS}=0V$ $f=1MHz$		228		pF
Output Capacitance	C_{oss}			17		

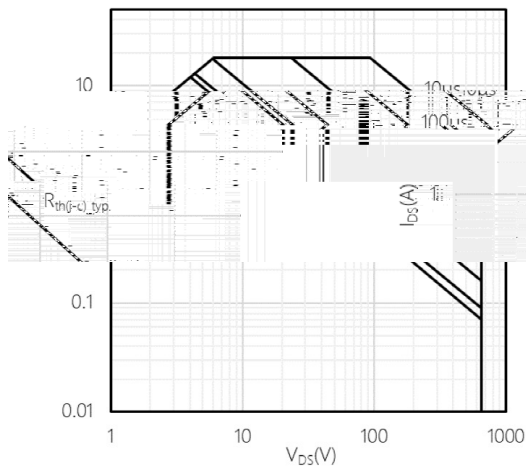


Fig1. Safe operating area (SOA)

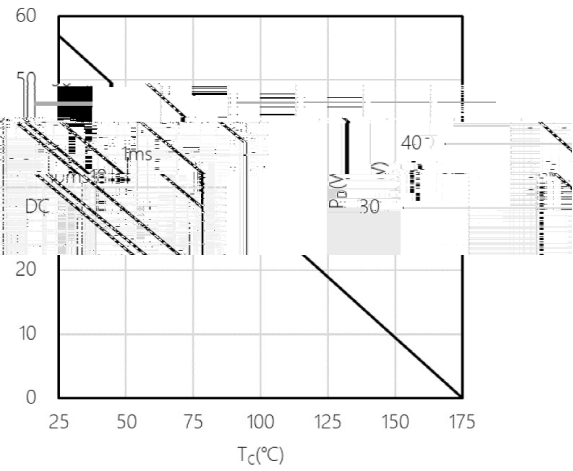


Fig2. Power dissipation

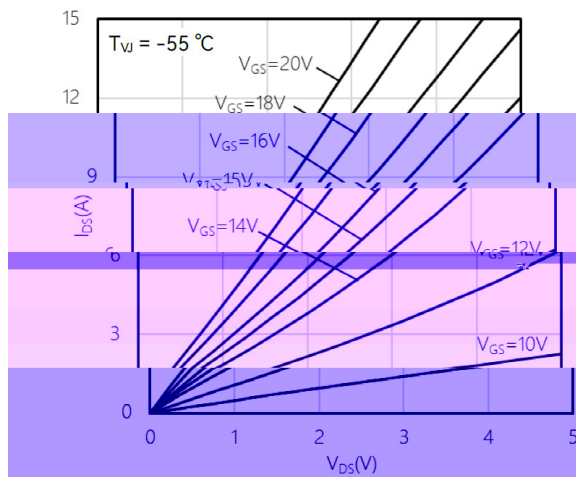


Fig3. Typical output characteristic

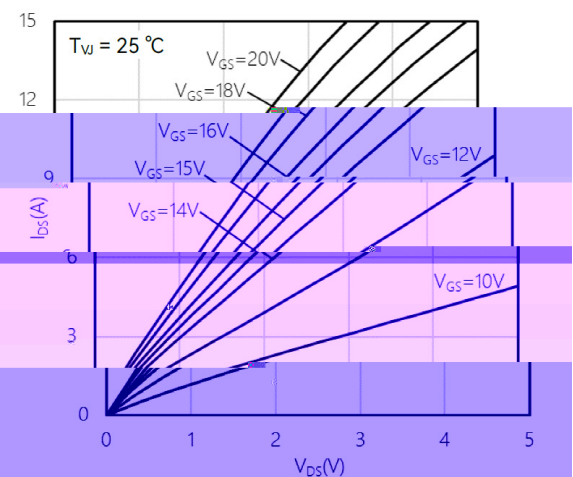


Fig4. Typical output characteristic

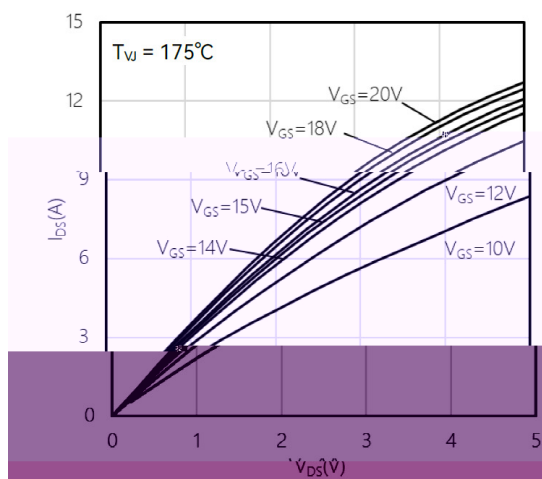


Fig5. Typical output characteristic

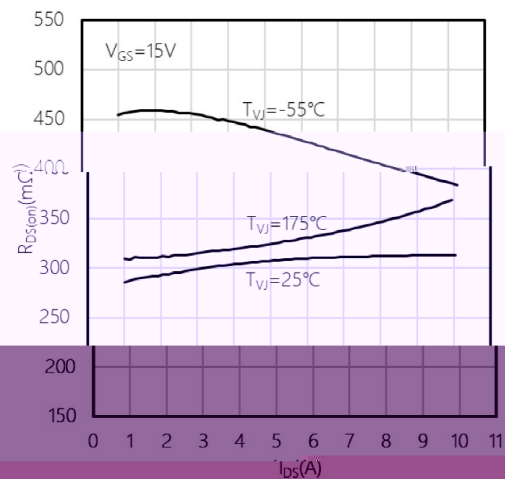


Fig6. Typical on-state resistance as a function of drain current

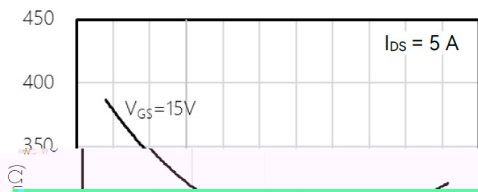


Fig.6. Typical on-state resistance as a function of temperature

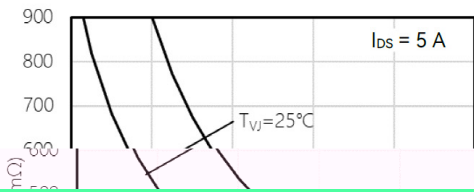
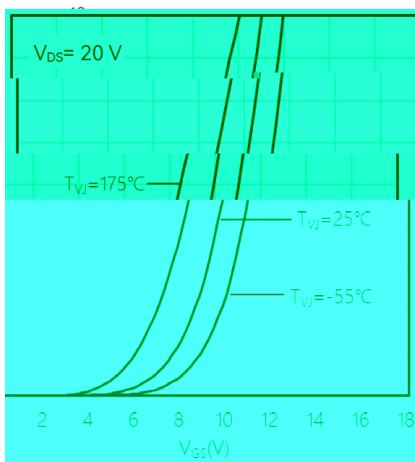

 Fig.7. Typical on-state resistance as a function of V_{GS}


Fig.9. Typical transfer characteristics

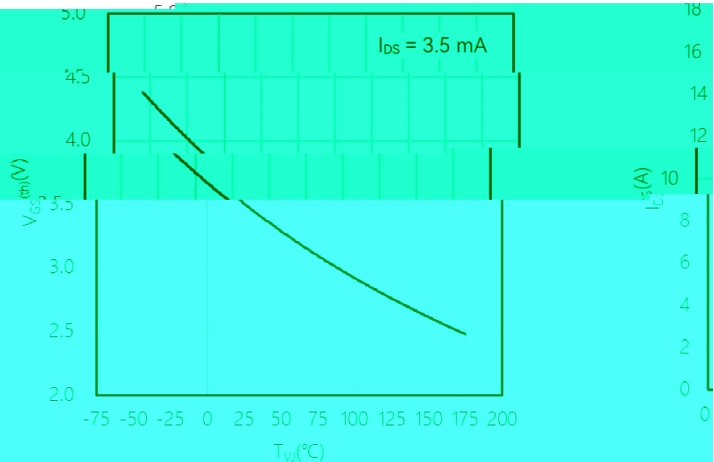


Fig.10. Typical reverse transfer characteristics

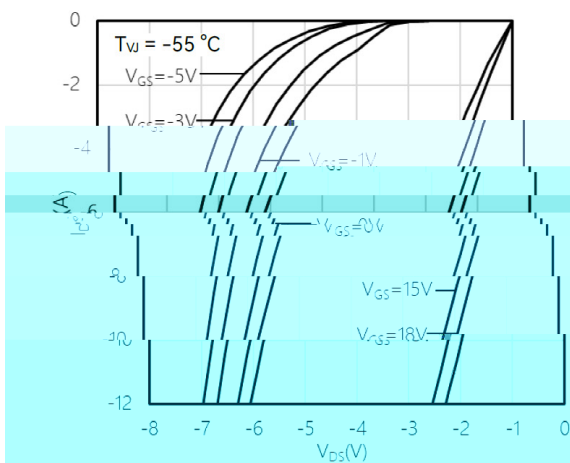


Fig.11. Typical reverse drain current as a function of reverse drain voltage

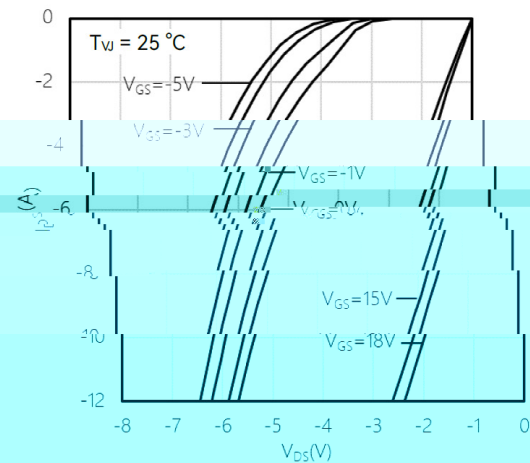
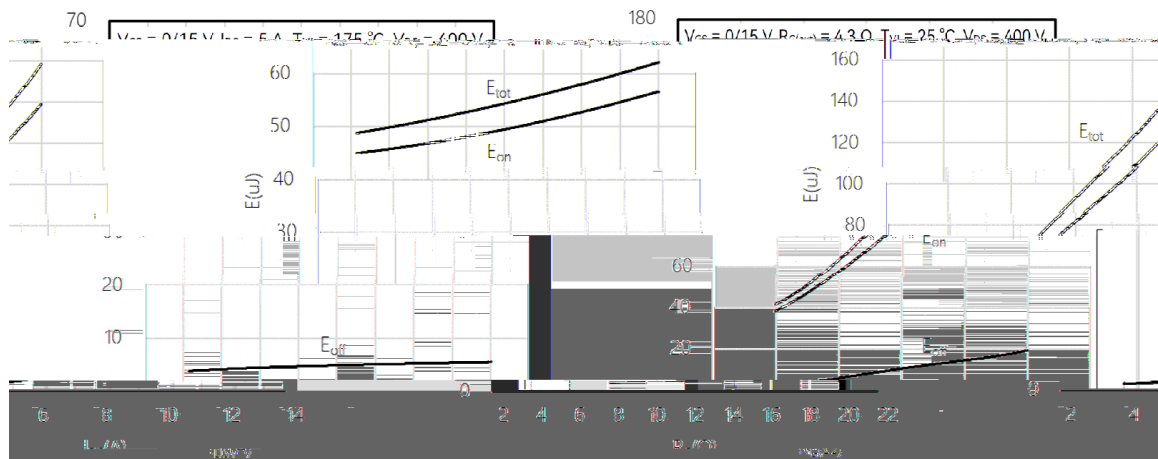
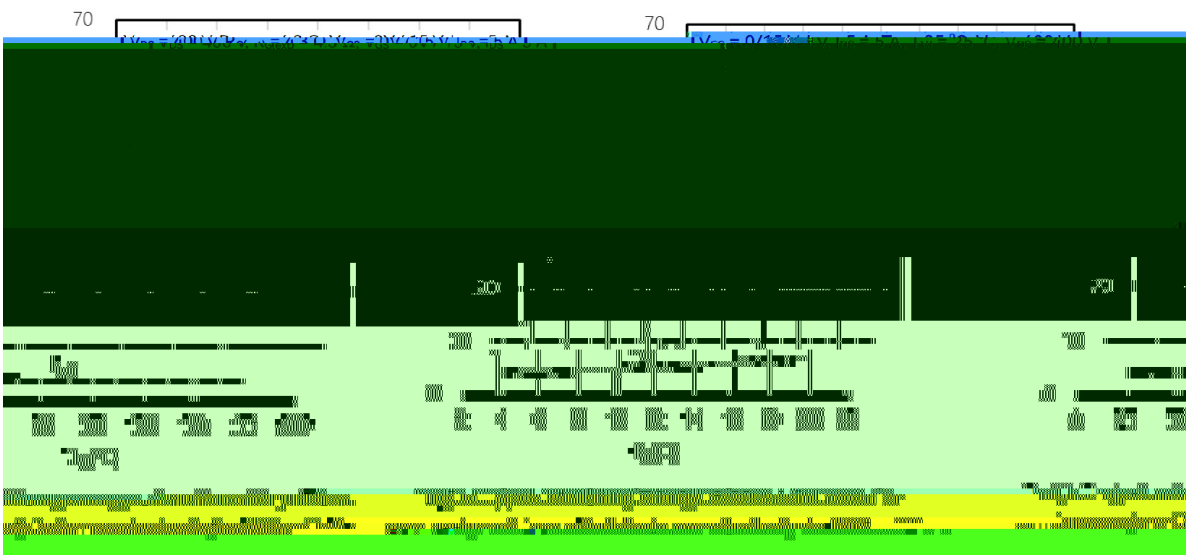
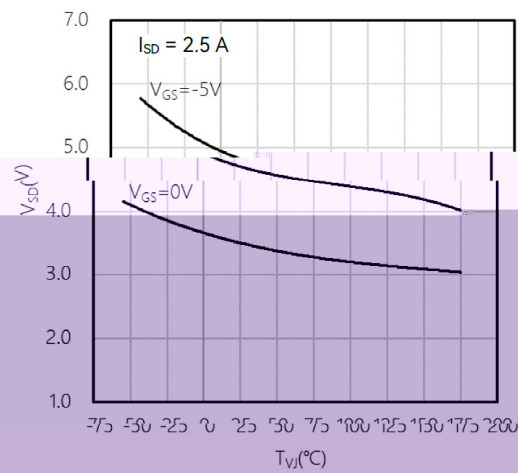
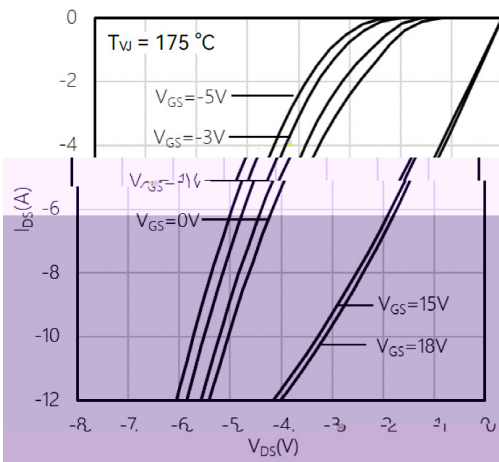


Fig.12. Typical reverse drain current as a function of reverse drain voltage



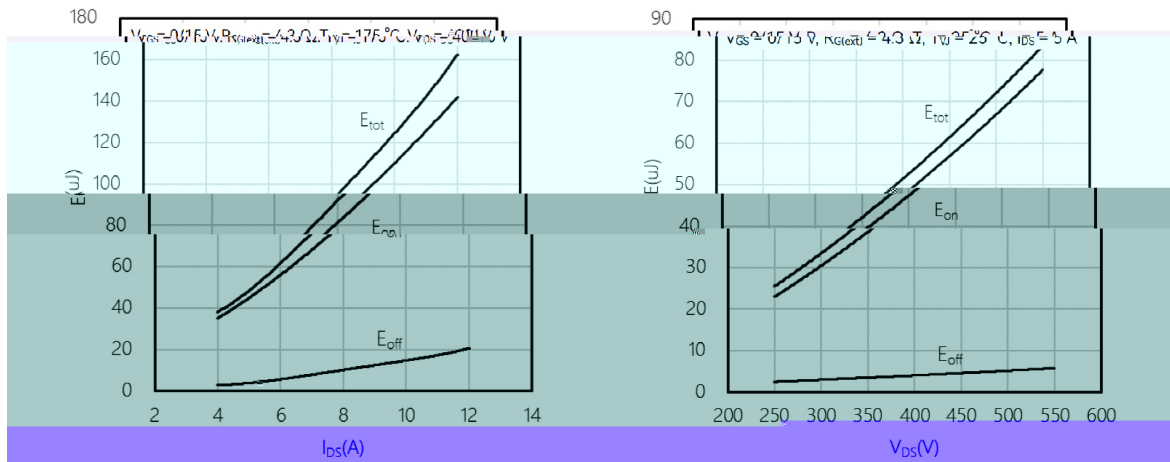


Fig20: Typical switching energy losses as a function

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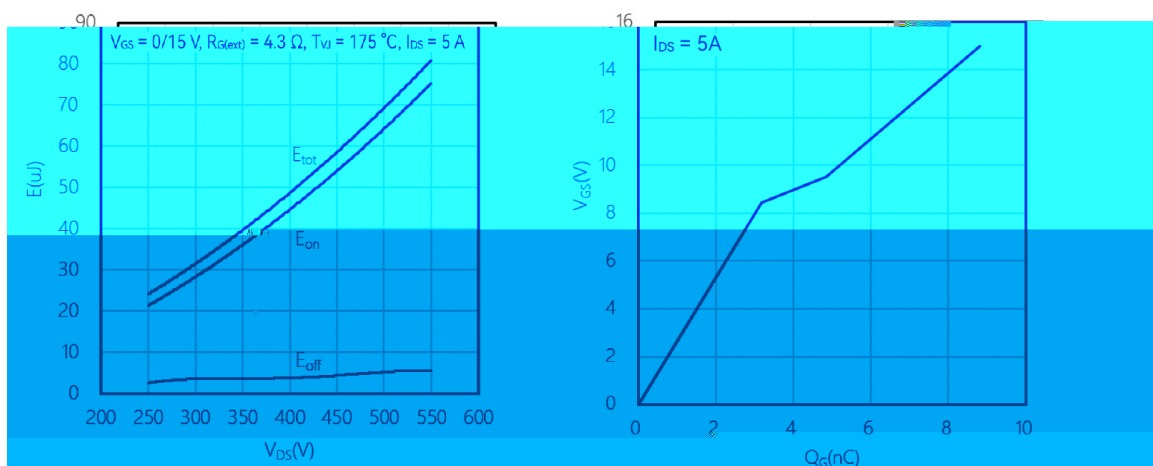


Fig21: Typical switching energy losses as a function

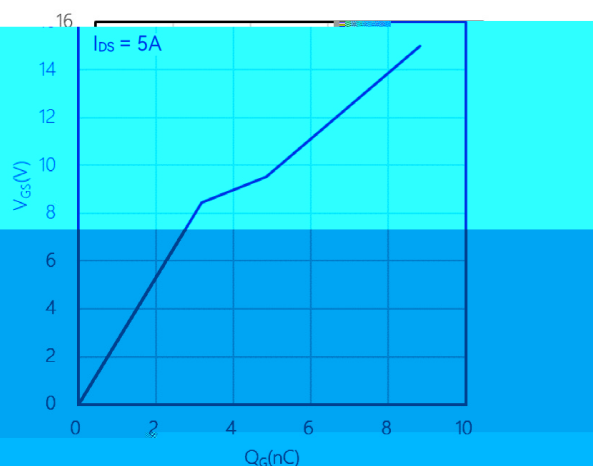


Fig22: Typical gate charge

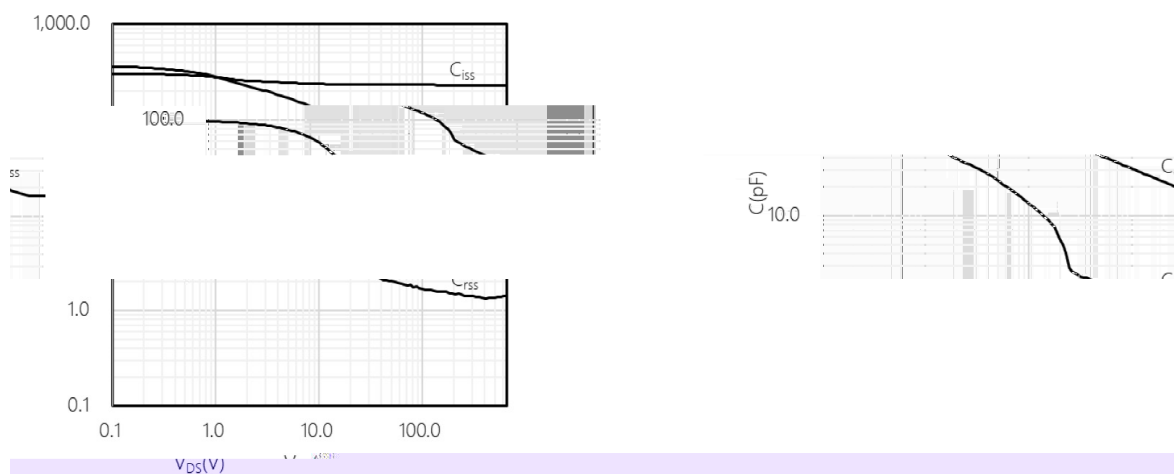
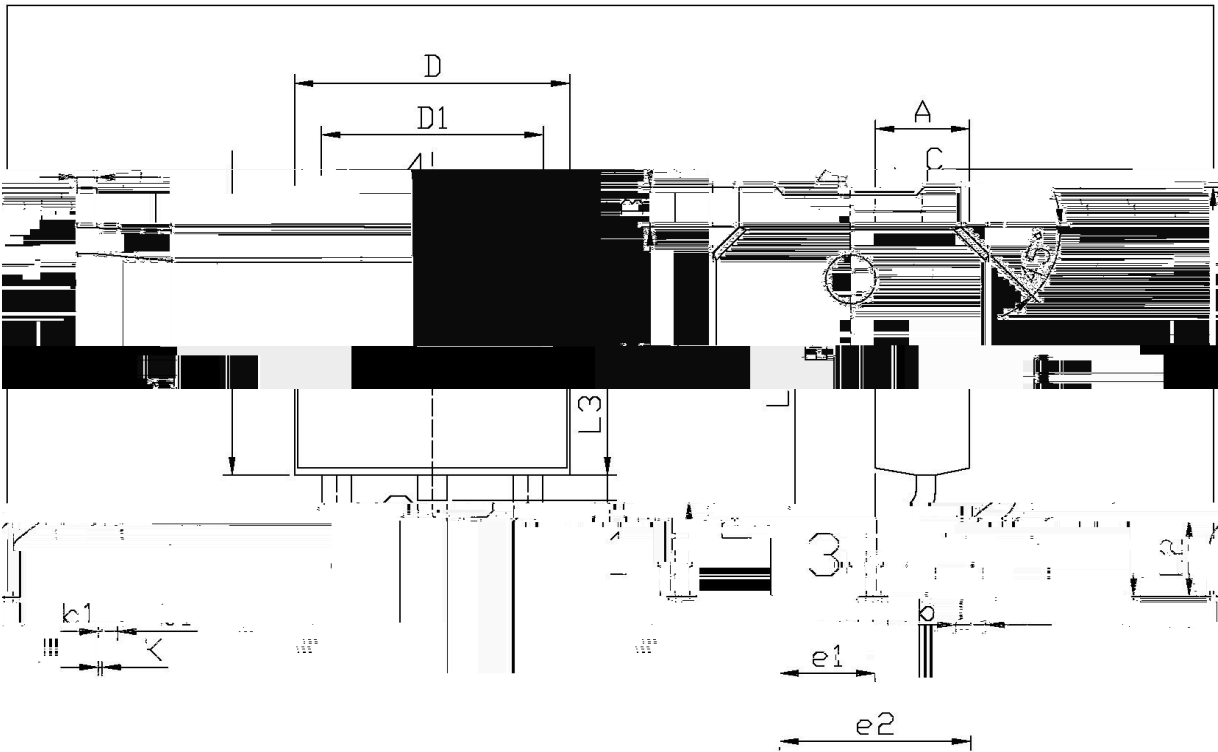


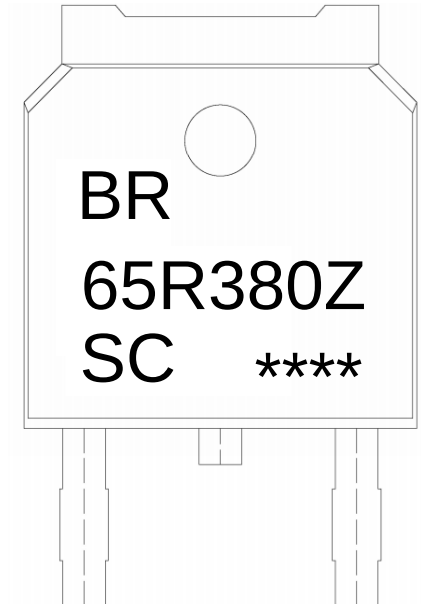
Fig23: Typical capacitance as a function of drain-source voltage



单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
	5.95	6.25		2.20	2.40
	2.21	2.34		0.95	1.25
	9.85	10.35		0.70	0.85
	0.45	0.55		0.45	0.55
	6.45	6.75		1.70	2.00
	5.10	5.50		0.60	0.90
				0.00	0.10

TO-252



BR

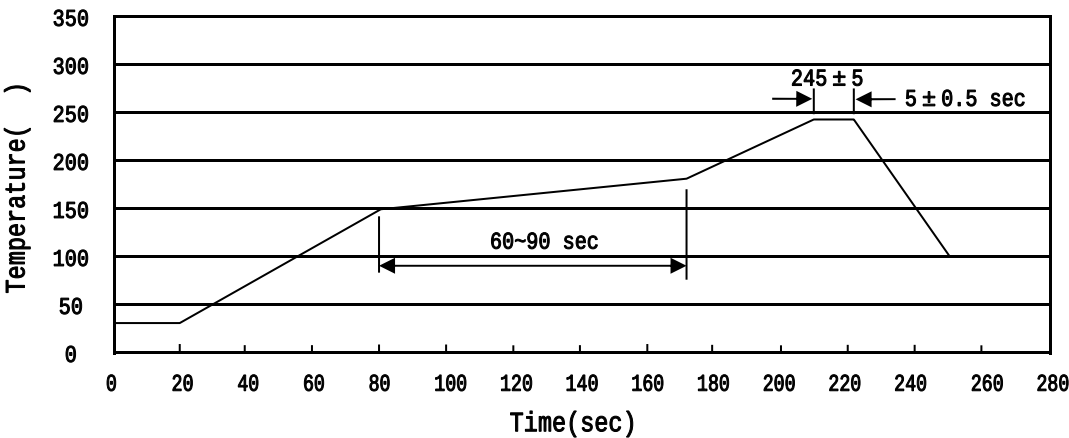
Note:

BR: Company Code

65R380Z: Product Type Code

SC: SiC

****: Lot No. Code, code change with Lot No.



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.

260 5

10 1 sec.

Temp.:260±5

Time:10±1 sec

/ REEL

Package Type	Units					Dimension (unit mm ³)		
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

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