

Rev.B Jul.-2026

TO-220F SiC N MOS

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

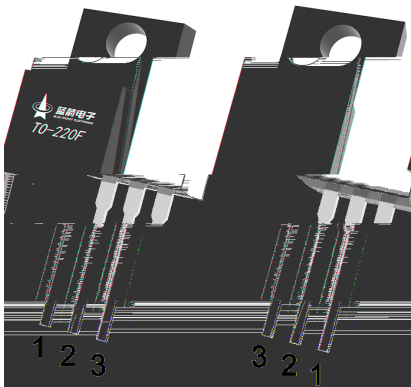
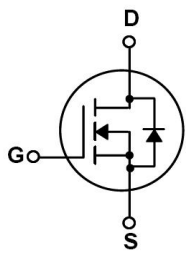
$V_{DS}=800V$ $I_D=8.8A$

$R_{DS(on)}@15V \leq 568m\Omega$ (Type. 437m Ω)

$R_{DS(on)}@18V \leq 480m\Omega$ (Type. 316m Ω)

LED PD PC

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



PIN1 G

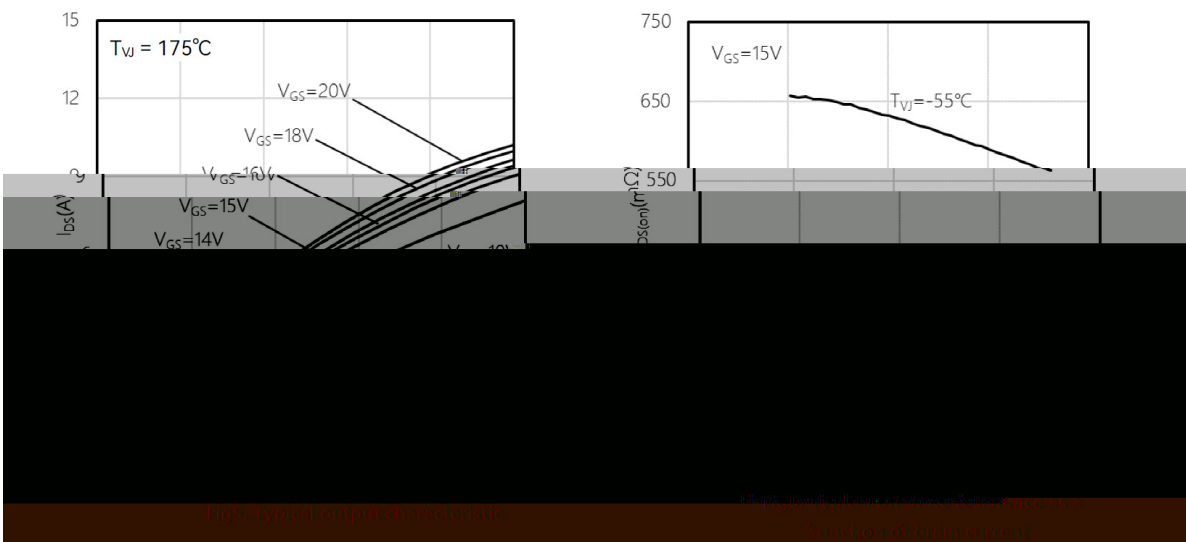
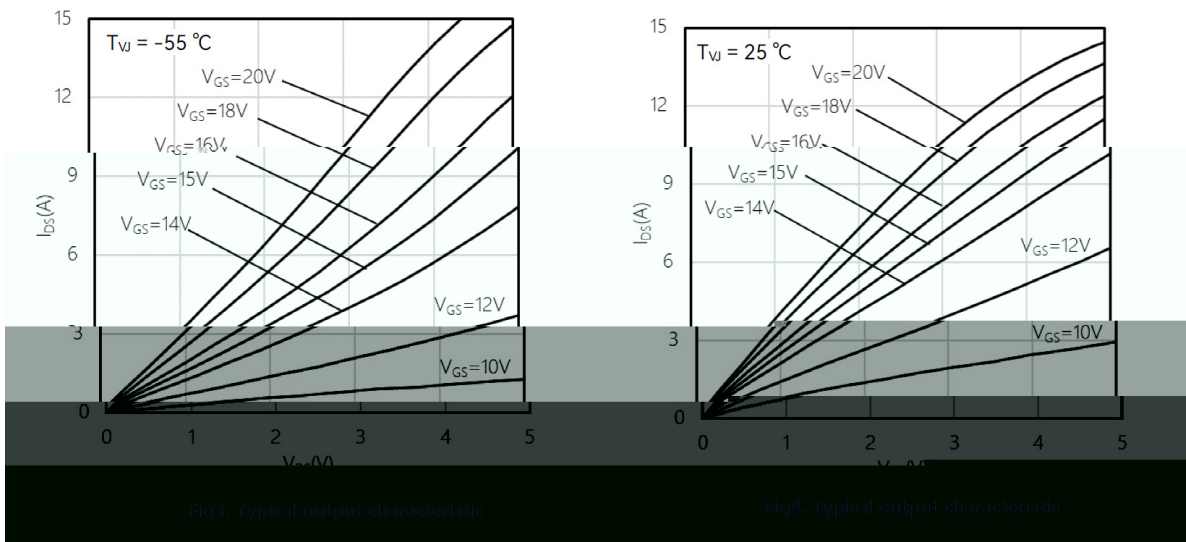
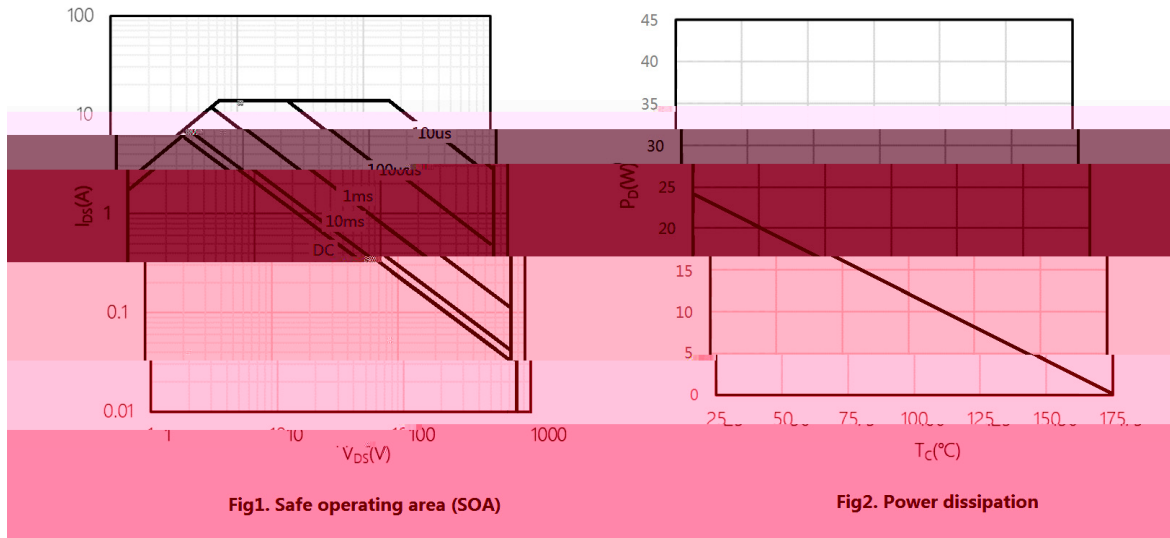
PIN 2 D

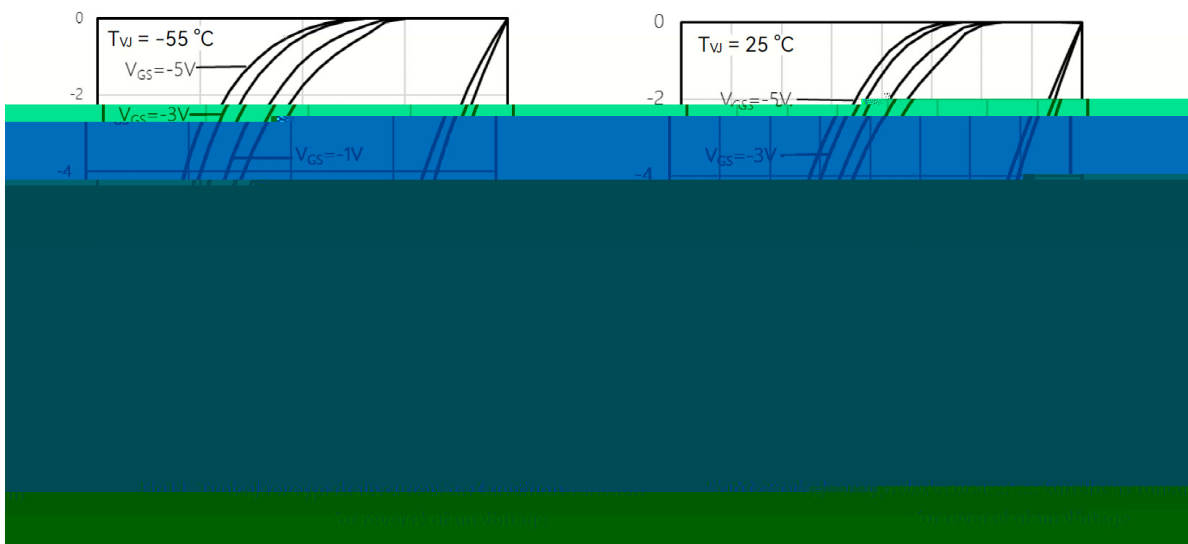
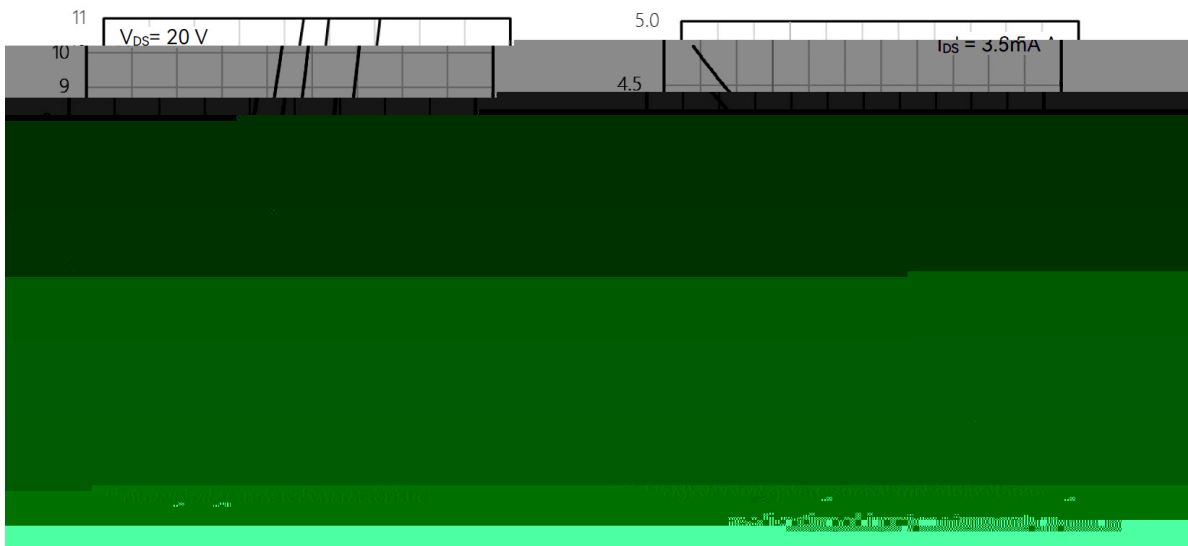
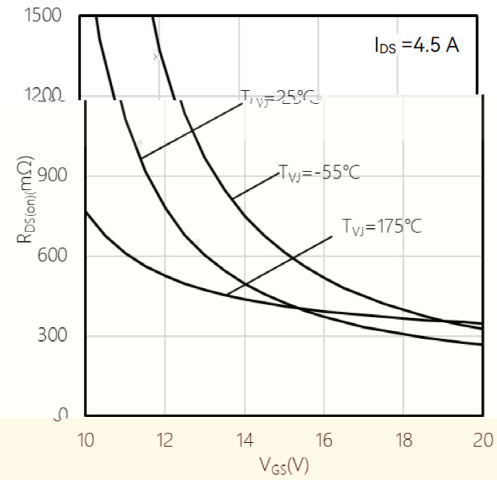
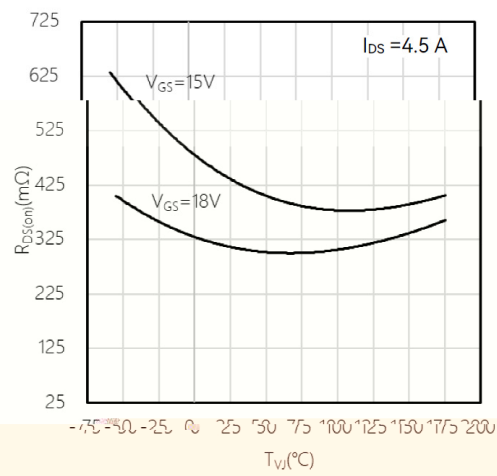
PIN 3 S

See Marking Instructions.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	800	V
Continuous DC Drain Current for $R_{th(j-c,typ.)}$, Limited by $T_{VJ(max)}$	$I_D(T_c=25^\circ C)$	8.8	A
	$I_D(T_c=100^\circ C)$	6.8	A
Peak Drain Current, tp Limited by $T_{VJ(max)}$	I_{DM}	14	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}	13.3	mJ
Power Dissipation or $R_{th(j-c,typ.)}$	$P_D(T_c=25^\circ C)$	24	W
Operating and Storage Temperature Range	T_{VJ}, T_{STG}	-55 to 175	
MOSFET/Body Diode Junction-Case Thermal Resistance	$R_{th(j-c)}$	6.25	/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	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=3.5mA$	3		5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=800V$ $V_{GS}=0V$		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	$R_{DS(on)}$	$V_{GS}=15V$ $I_D=4.5A$		437	568	m Ω
		$V_{GS}=15V$ $I_D=4.5A$ $T_{VJ}=175$		406		
		$V_{GS}=18V$ $I_D=4.5A$		316	480	
		$V_{GS}=18V$ $I_D=4.5A$ $T_{VJ}=175$		379		
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=2.5A$		3.8		V
Continuous DC Source Current	I_S			8		A
Peak Reverse Drain Current,	I_{SM}			14		A
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V, I_{SD}=4.5A, V_R=400V, di/dt=1.1kA/us$		9.4		ns
Reverse Recovery Charge	Q_{rr}			23		nC
Peak Reverse Recovery Current	I_{rrm}			4.1		A
Reverse Recovery Energy	E_{rr}			0.16		μJ





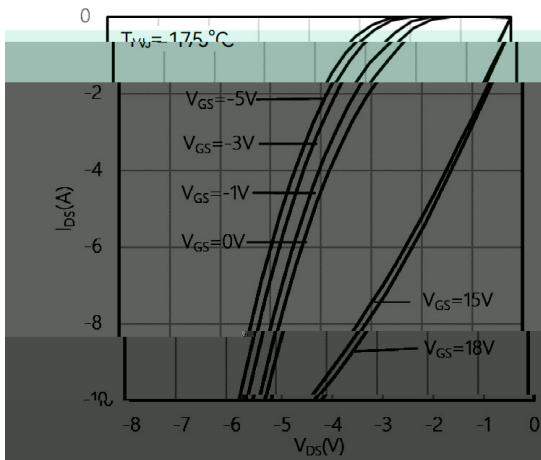


Fig13. Typical reverse drain current as function of reverse drain voltage

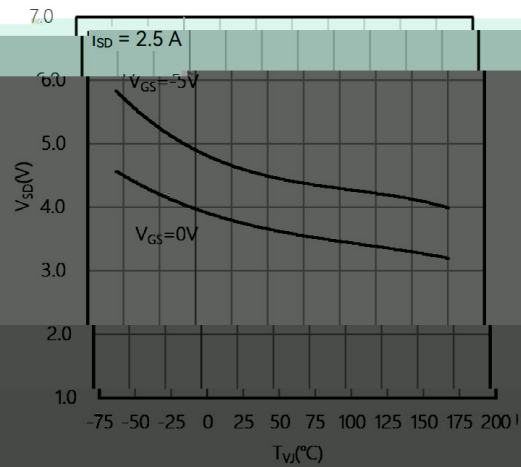


Fig14. Typical reverse drain voltage as function of junction temperature

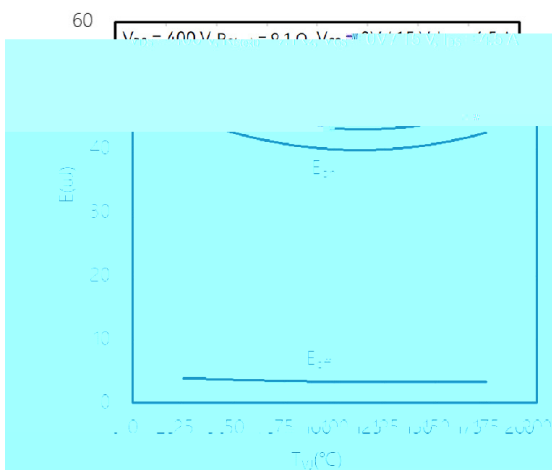


Fig15. Typical switching energy as a function of junction temperature

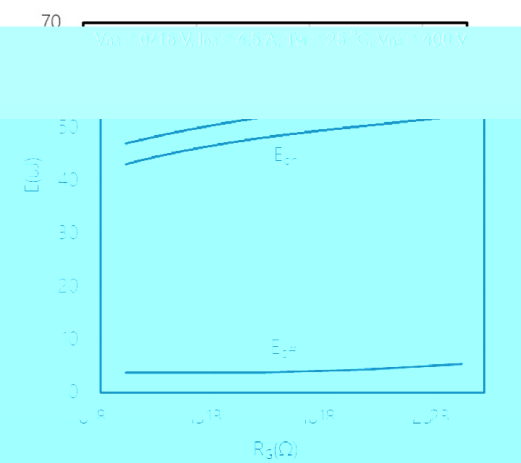


Fig16. Typical switching energy losses as a function of gate resistance

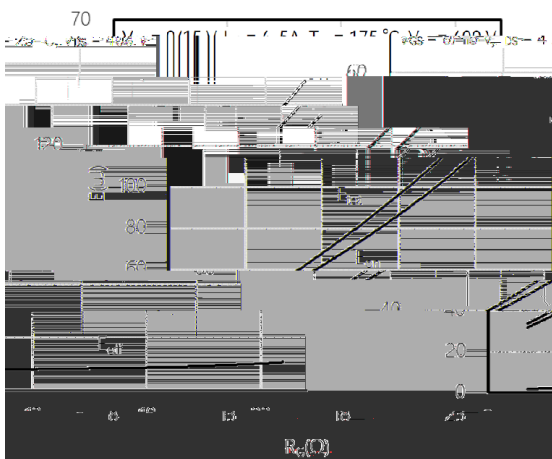


Fig17. Typical switching energy losses as a function of gate resistance, 2nd device own body diode; VGS = 10V

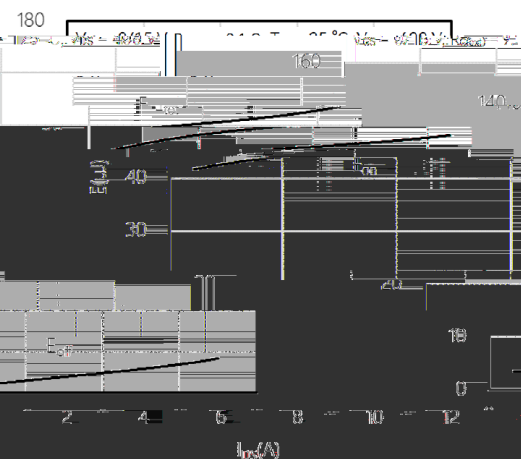


Fig18. Typical switching energy losses as a function of Ids, 2nd device own body diode; VGS = 10V

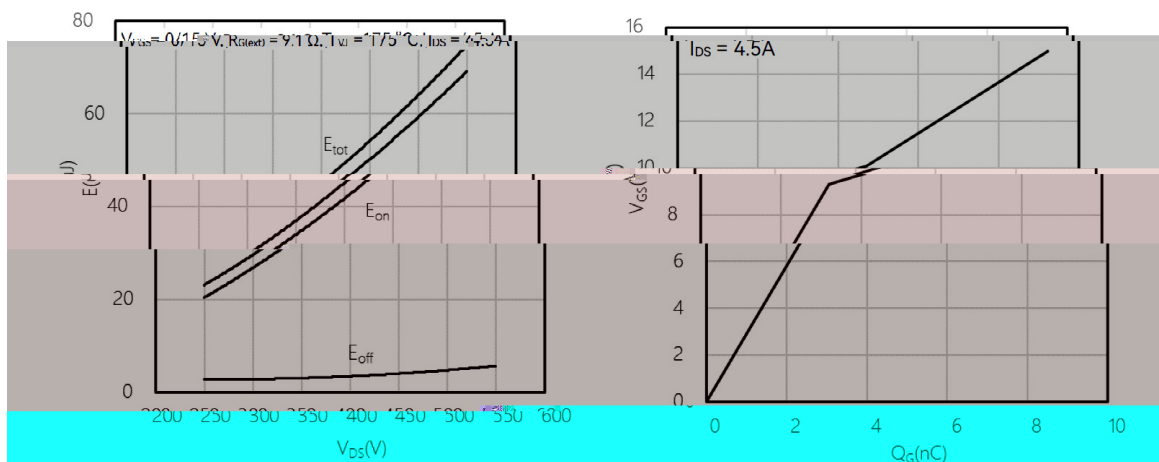
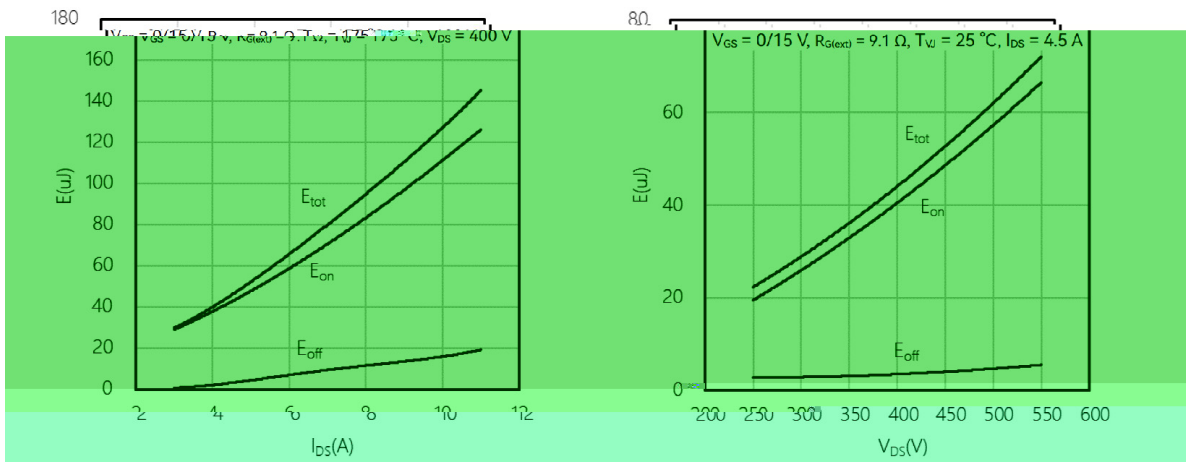


Fig21. Typical switching energy losses as a function of V_{DS} . 2nd device turn, body diode, $V_{GS} = 0V$

Fig22. Typical gate charge

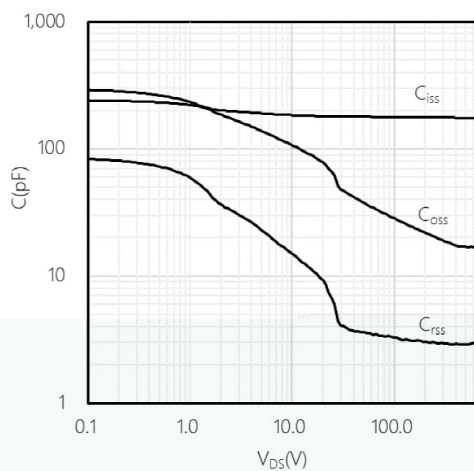


Fig23. Typical capacitance as a function of drain-source voltage

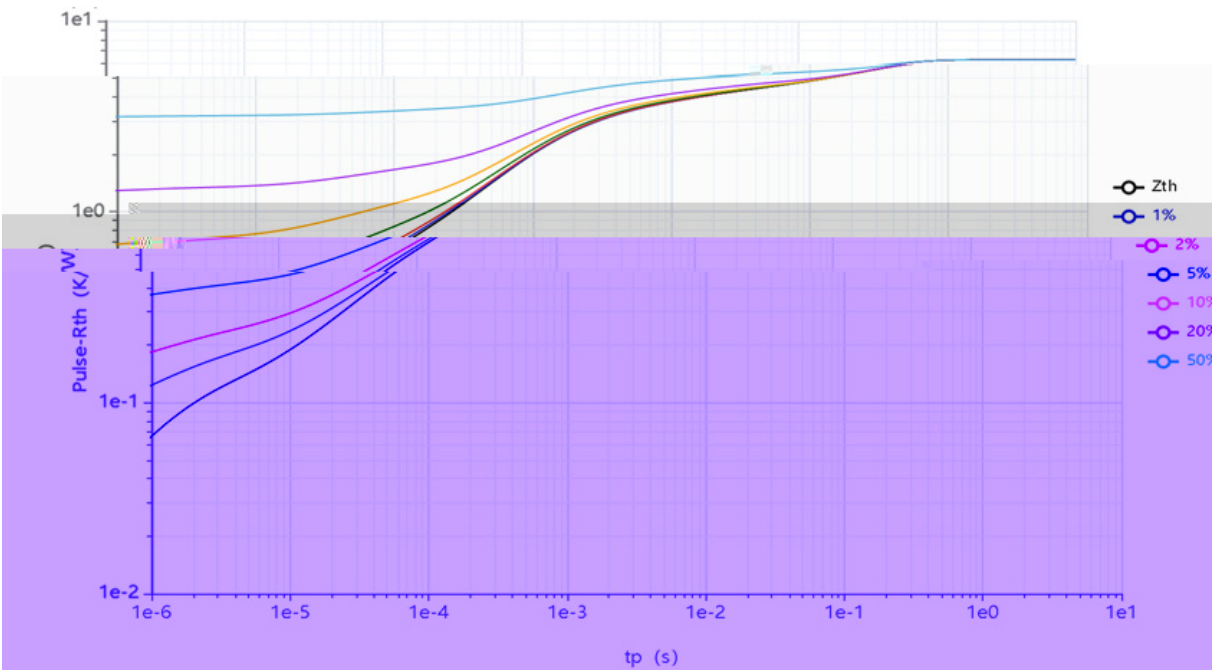
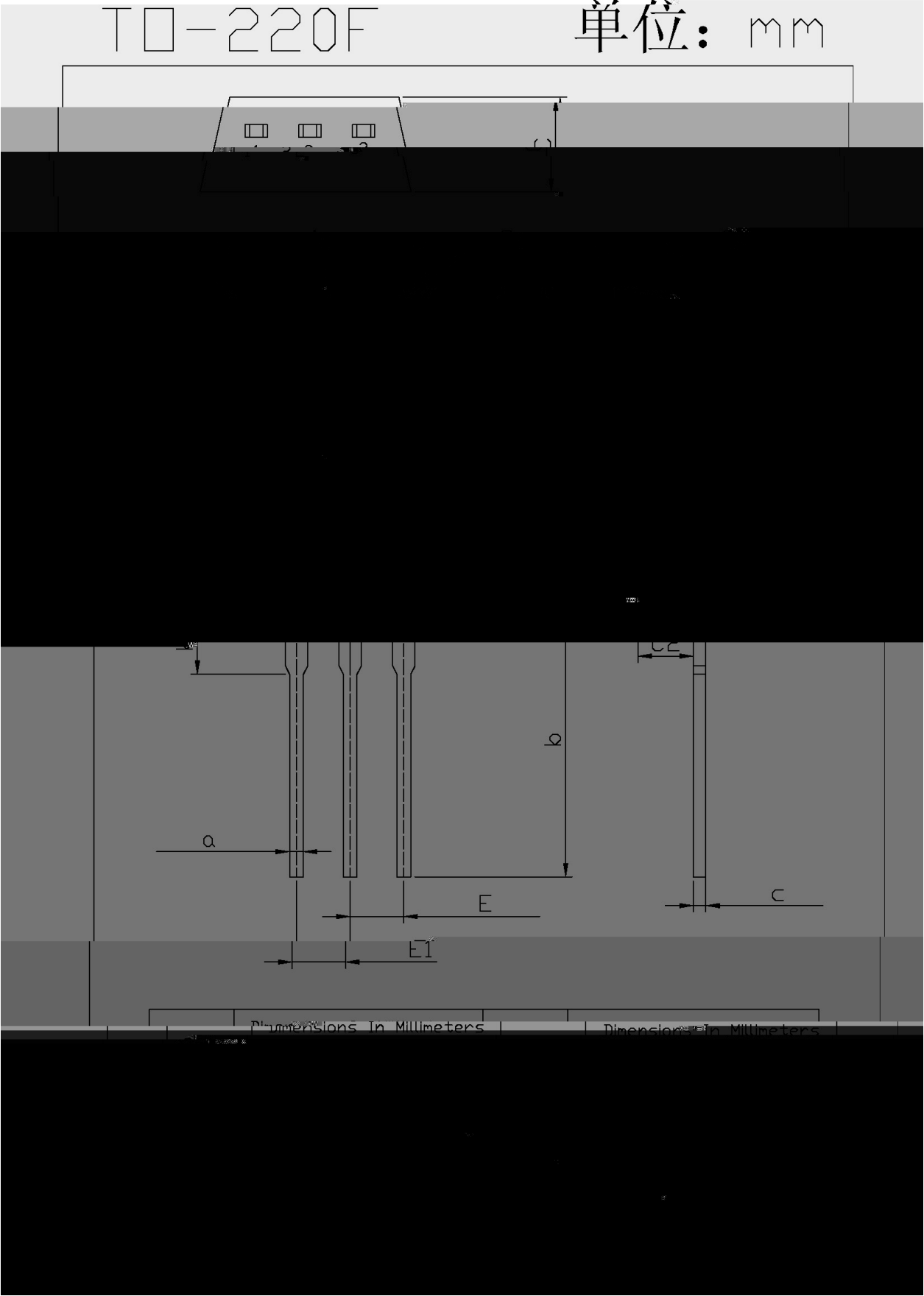
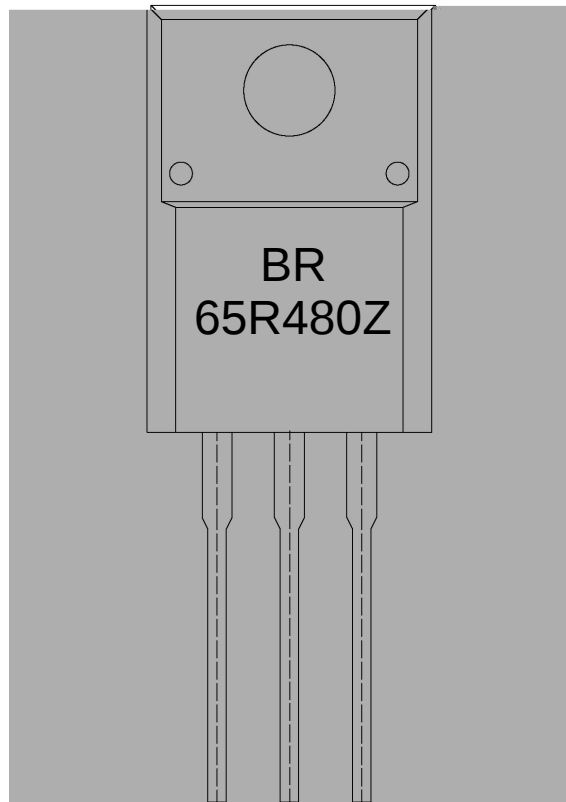


Fig 24. Transient thermal resistance (MOSFET)





BR

65R480Z

SC

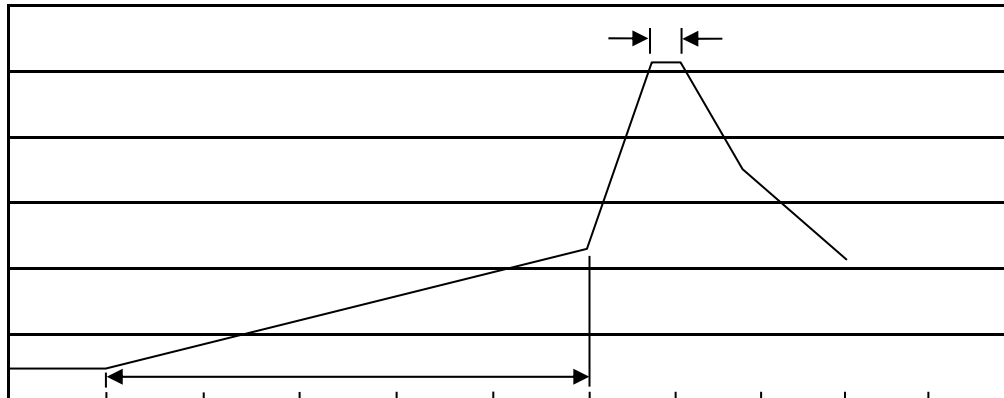
Note:

BR: Company Code

65R480Z: Product Type Code

SC: SiC

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



Note:

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

270±5	10±1 sec.	Temp.:270±5	Time:10±1 sec
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/ BULK

Package Type	Units					Dimension (unit mm ³)		
	Units/Bag /	Bags/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Bag	Inner Box	Outer Box
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)		
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

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