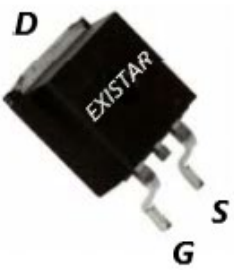
P-Channel -100V MOSFET

E19P100KC

V_{DS} (V)	$R_{DS(on),max}$ (mΩ)	I_D (A)
-100V	103 @ V_{GS} = -10V	-19

TO-252

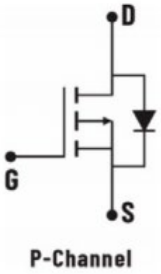


Features

- Low $R_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed
- 100% avalanche tested

Applications

- DC/DC conversion
- Power switch
- Moto driver



Pb-free
RoHS
COMPLIANT
HALOGEN
FREE

Package And Ordering Information

Ordering code	Package	Marking
E19P100KC	TO-252	E19P100KC

Ordering Information

Package	Units/ Reel	Reels/ Inner Box	Units/ Inner Box
TO-252	2500	2	5000

Key Performance Parameters

Parameter	Value	Unit
VDS, min @ Tj(max)	-100	V
ID, pulse	-76	A
RDS(ON), max @ VGS=-10V	103	mΩ
Qg	72	nC

Absolute Maximum Ratings at Tj=25°C Unless Otherwise Noted

Parameter		Symbol	Limit	Unit
Drain-source voltage		V_{DS}	-100	V
Gate-source voltage		V_{GS}	±20	
Continuous drain current	T_C=25°C	I_D	-19	A
	T_C=100°C		-13.5	
Pulsed drain current		$I_{D,pulse}$	-76	
Avalanche energy, single pulse		E_{AS}	156	mJ
Power dissipation	T_C=25°C	P_D	79	W
	T_A=25°C			
Operating junction and storage temperature range		T_J, T_{stg}	-55 To 175	℃

Thermal Characteristics

Parameter		Symbol	Max.	Unit
Thermal resistance, junction-to-case	Steady state	$R_{\theta JC}$	1.9	°C/W
Thermal resistance, junction-to-ambient	Steady state	$R_{\theta JA}$	62	

Electrical Characteristics at Tj=25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Static						
Drain to source breakdown voltage	$V_{(BR)DSS}$	-100	-121		V	V_{GS} = 0, I_D = -250 μA
Gate-source threshold voltage	$V_{GS(th)}$	-1	-1.8	-2.5	V	V_{DS} = V_{GS}, I_D = -250 μA
Gate-body leakage	I_{GSS}			±100	nA	V_{DS} = 0 V, V_{GS} = ±20 V
Zero gate voltage drain current	I_{DSS}			-1	μA	V_{DS} = -100 V, V_{GS} = 0 V
Drain-source on-resistance	$R_{DS(on)}$		93	103	mΩ	V_{GS} = -10 V, I_D = -6 A
Drain-source on-resistance	$R_{DS(on)}$		98	120	mΩ	V_{GS} = -4.5 V, I_D = -5 A

Forward transconductance	gfs		150		S	V_{DS} = -5 V, I_D = -5 A
Gate Charge						
Total gate charge	Qg		72		nC	V_{DS} = -50 V, I_D = -10 A, V_{GS} = -10 V
Gate-source charge	Qgs		8.4			
Gate-drain charge	Qgd		17.3			
Dynamic						
Turn-on delay time	$t_{d(on)}$		6		ns	V_{DS} = -50 V, V_{GS} = -10 V, R_L=5 Ω , R_{GEN}=9.1 Ω
Rise time	t_r		29			
Turn-off delay time	$t_{d(off)}$		17			
Fall time	t_f		24			
Input capacitance	C_{iss}		3690		pF	V_{DS} =-50 V, V_{GS} = 0 V, f = 1.0MHz
Output capacitance	C_{oss}		85			
Reverse transfer capacitance	C_{rss}		70			
Body Diode						
Diode forward voltage	V_{SD}			-1.2	V	V_{GS} = 0 V, I_S = -10 A
Reverse recovery time	t_{rr}		32		ns	I_F = -15 A, di/dt = 100 A/μs
Reverse recovery charge	Q_{rr}		53		nC	

Electrical Characteristics Diagrams

Figure 1. Output Characteristics

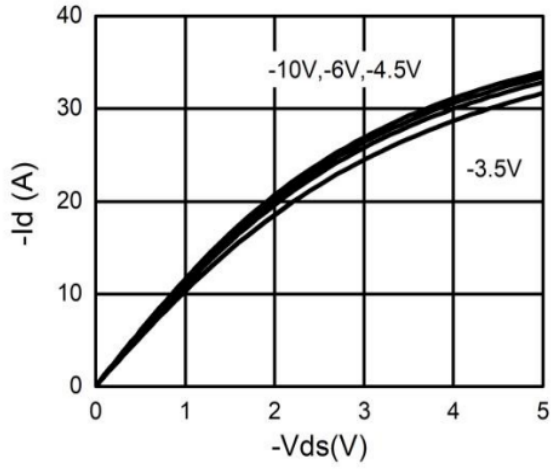


Figure 2. Transfer Characteristics

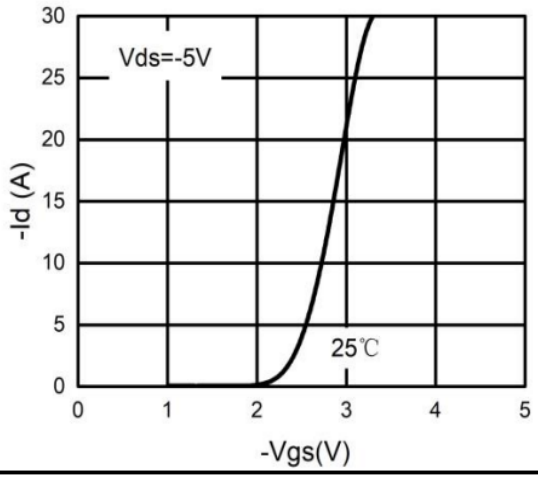


Figure 3. Power Dissipation

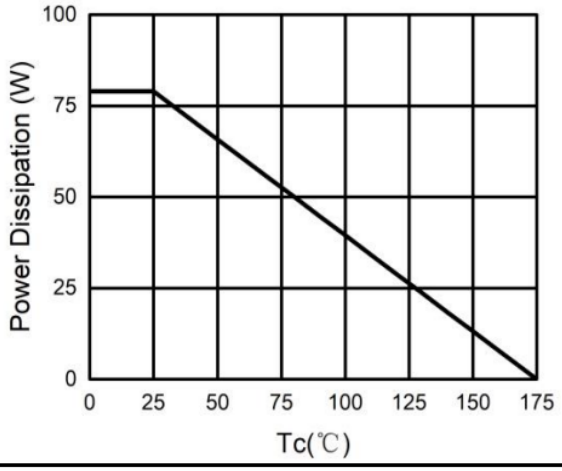


Figure 4. Drain Current

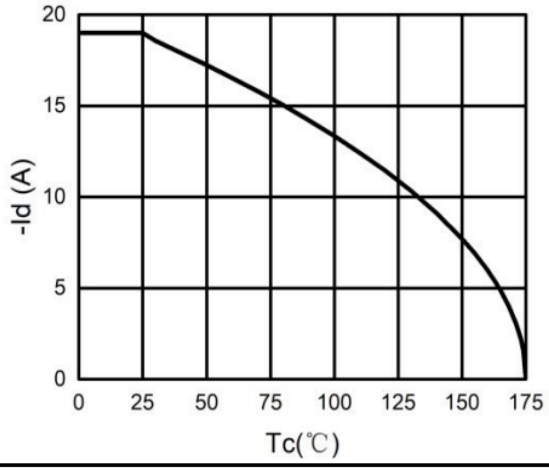


Figure 5. BV_{DSS} vs Junction Temperature

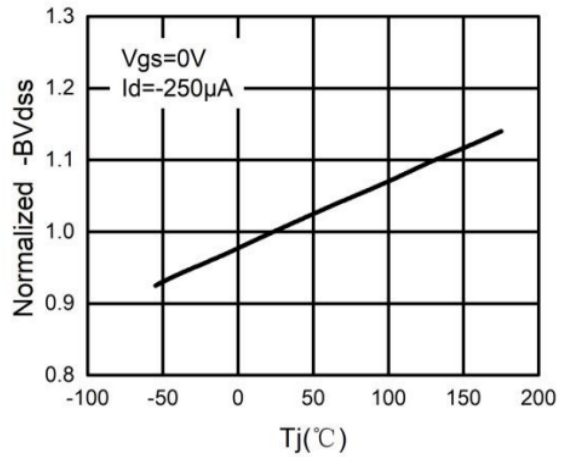


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

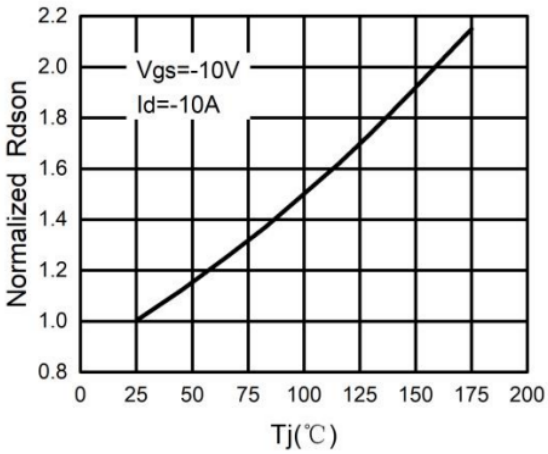


Figure 7. Gate Charge Waveforms

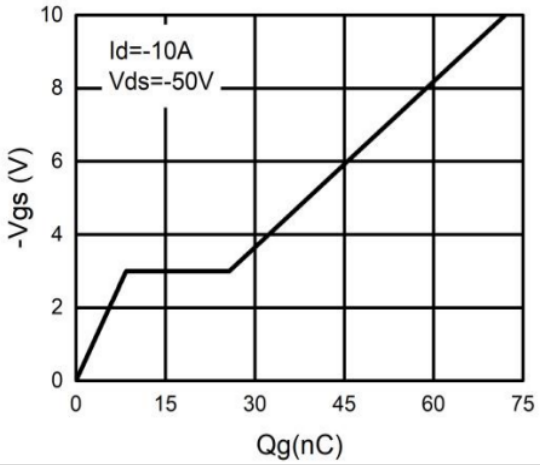


Figure 8. Capacitance

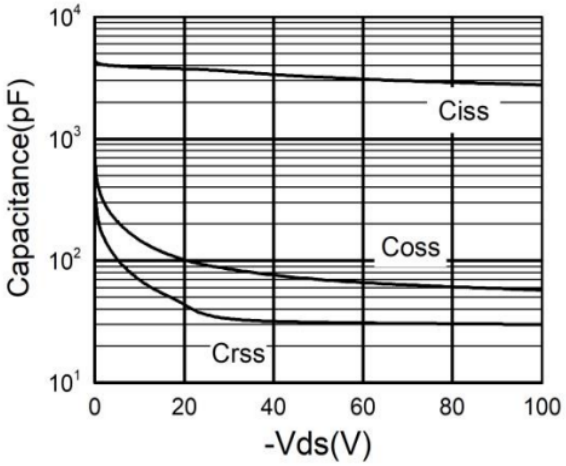


Figure 9. Body-Diode Characteristics

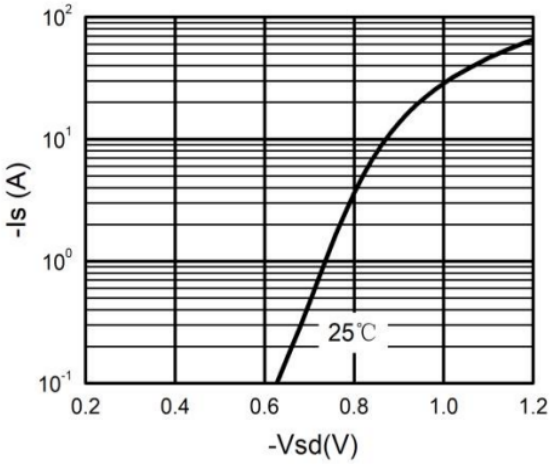
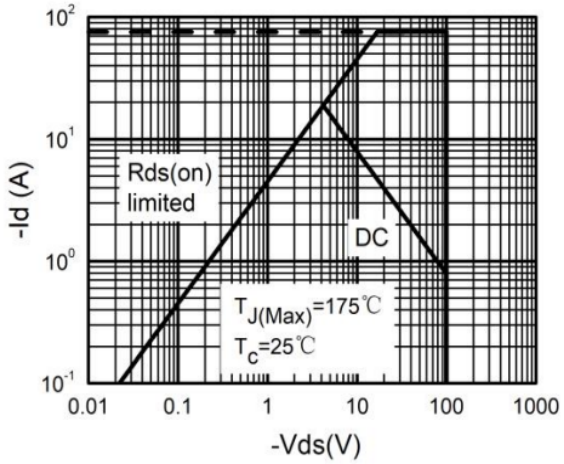
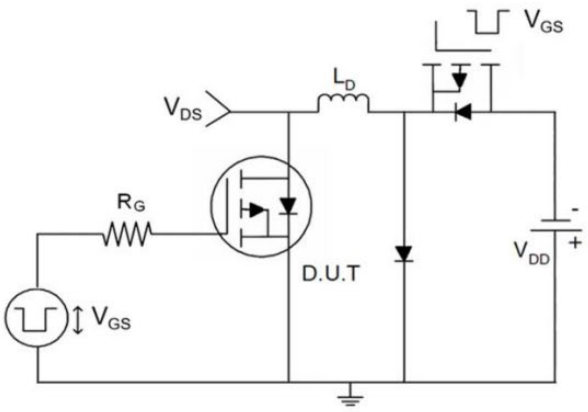


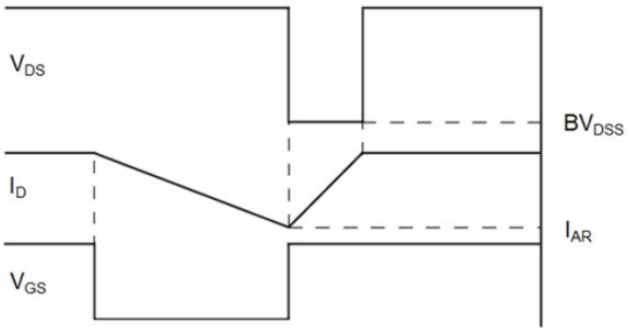
Figure 10. Maximum Safe Operating Area



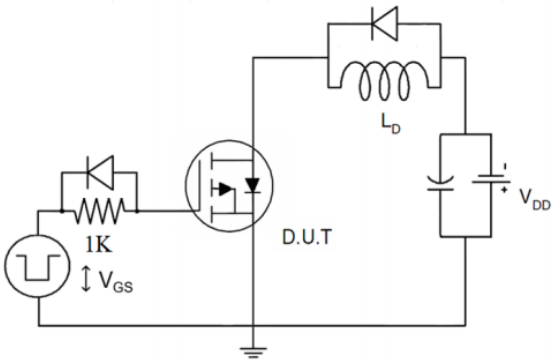
Test circuits and waveforms

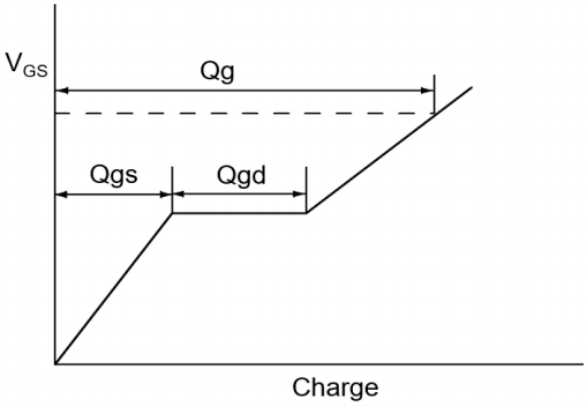
1) E_{AS} Test Circuits



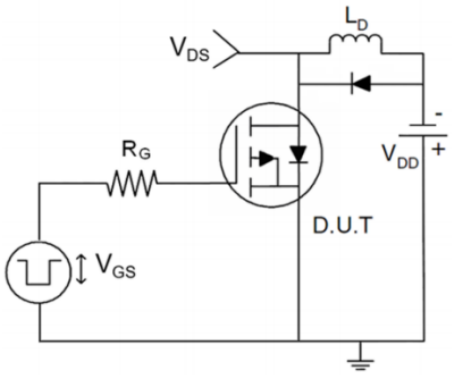


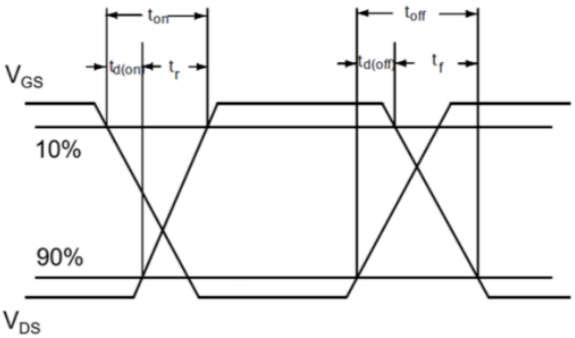
2) Gate Charge Test Circuit



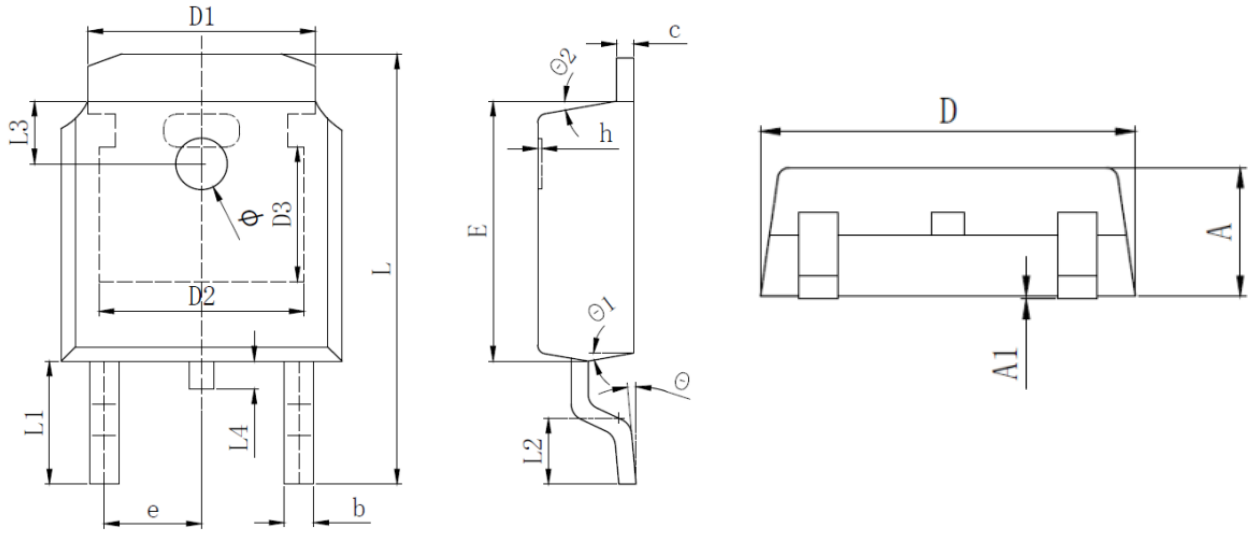


3) Switch Time Test Circuit





Package Outline Dimensions



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c(电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ1	9° TYP		
θ2	9° TYP		

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