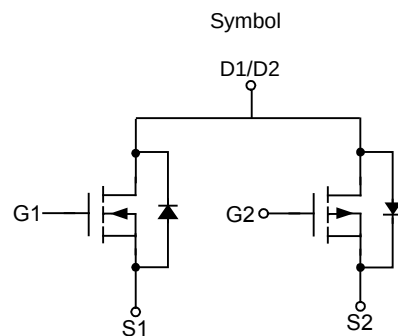


PRODUCT CHARACTERISTICS

N-CHANNEL		P-CHANNEL	
V_{DSS}	40V	V_{DSS}	-40V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	16m Ω	$R_{DS(ON)}$ Typ(@ $V_{GS}=-10V$)	14m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$)	19m Ω	$R_{DS(ON)}$ Typ(@ $V_{GS}=-4.5V$)	18m Ω
I_D	28A	I_D	-25A



APPLICATIONS

- * High efficiency switch mode power supplies
- * Electronic lamp ballasts based on half bridge
- * LED power supplies

FEATURE

- * High Switching Speed
- * Improved dv/dt capability

ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT4618D	TO-252-4L	2500 pieces/Reel



ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	N-CHANNEL	P-CHANNEL	Unit
Drain-Source Voltage	V_{DSS}	40	-40	V
Gate-Source Voltage	V_{GSS}	± 20	± 20	V
Drain Current Continuous(@ $V_{GS}=10V, T_A=25^{\circ}C$)	I_D	28	-25	A
Drain Current Pulsed	I_{DM}	112	-100	A
Power Dissipation	P_D	38		W
Junction Temperature	T_J	+150		$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150		$^{\circ}C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	3.3	$^{\circ}C/W$

■ N-CHANNEL ELECTRICAL CHARACTERISTICS($T_c=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V,I _D =-250μA	40	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =40V,V _{GS} =0V	-	-	-1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V,V _{DS} =0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V ,V _{DS} =0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V,I _D =15A	-	16	22	mΩ
		V _{GS} =4.5V,I _D =15A	-	19	26	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.45	2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	2.7	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =5V,I _D =5 A	-	8	-	S
Input Capacitance	C _{iss}	V _{DS} =20V,V _{GS} =0V f=1.0MHz	-	1082	-	pF
Output Capacitance	C _{oss}		-	83	-	pF
Reverse Transfer Capacitance	C _{rss}		-	74	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =10V, V _{DS} =20V, I _D =20 A,R _G =3Ω	-	55	-	ns
Rise Time	t _r		-	14	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	24	-	ns
Fall Time	t _f		-	5	-	ns
Total Gate Charge	Q _g	I _D =20A, V _{DS} =20V V _{GS} =10V	-	22.9	-	nC
Gate to Source Charge	Q _{gs}		-	3.5	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	5.3	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	28	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	112	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.74	1.2	V

■ P-CHANNEL ELECTRICAL CHARACTERISTICS($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V,I _D =-250μA	-40	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =-40V,V _{GS} =0V	-	-	-1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V,V _{DS} =0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V ,V _{DS} =0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V,I _D =-15A	-	14	18	mΩ
		V _{GS} =-4.5V,I _D =-15A	-	18	24	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =-250μA	-1	-1.5	-2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	17	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =-5V,I _D =-5A	-	15	-	S
Input Capacitance	C _{iss}	V _{DS} =-20V,V _{GS} =0V f=1.0MHz	-	928	-	pF
Output Capacitance	C _{oss}		-	103	-	pF
Reverse Transfer Capacitance	C _{rss}		-	89	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =-10V,V _{DS} =-20V, I _D =-20 A,R _G =6Ω	-	10	-	ns
Rise Time	t _r		-	18	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	38	-	ns
Fall Time	t _f		-	24	-	ns
Total Gate Charge	Q _g	I _D =-20A, V _{DS} =-20V V _{GS} =-10V	-	42.2	-	nC
Gate to Source Charge	Q _{gs}		-	6.9	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	9.7	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	-25	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	-100	A
Diode Forward Voltage	V _{SD}	I _{SD} =-1A, V _{GS} =0V	-	-0.74	-1.2	V

N-CHANNEL TYPICAL CHARACTERISTICS

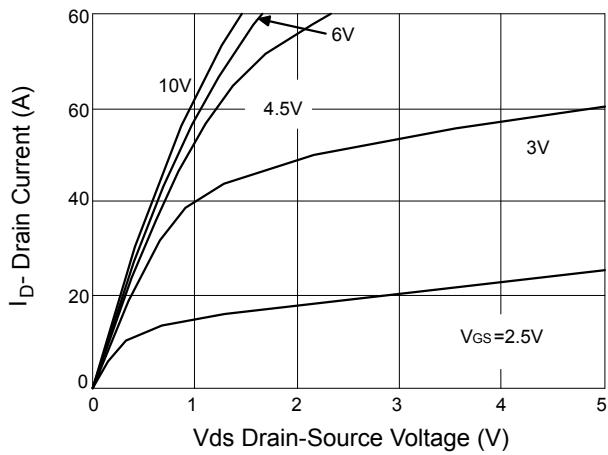


Figure 1 Output characteristics

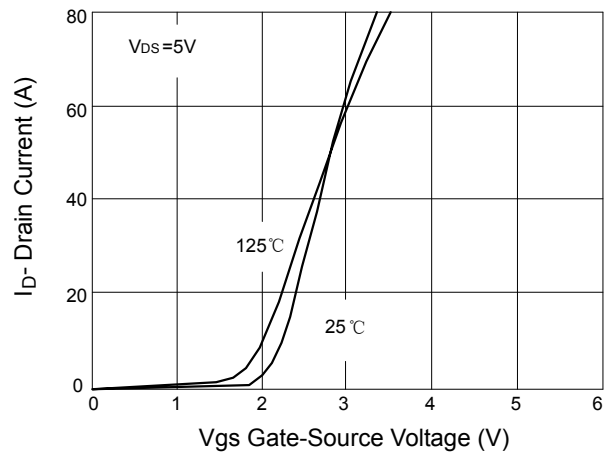


Figure 3 Transfer characteristics

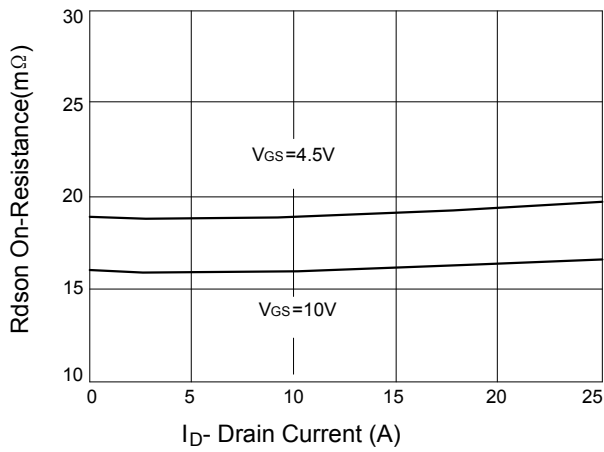


Figure 4 $R_{DS(on)}$ -drain current

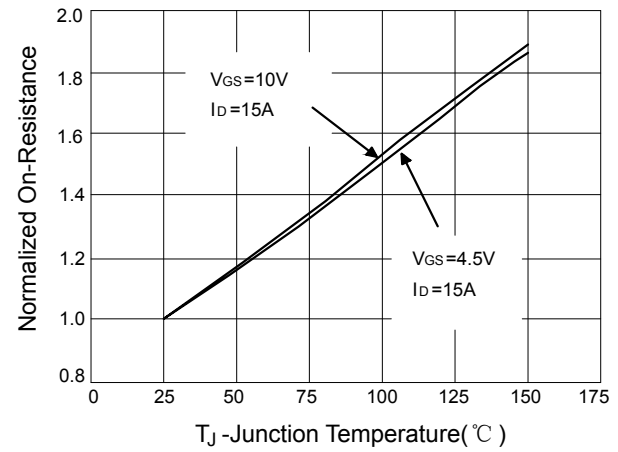


Figure 4 $R_{DS(on)}$ -junction temperature

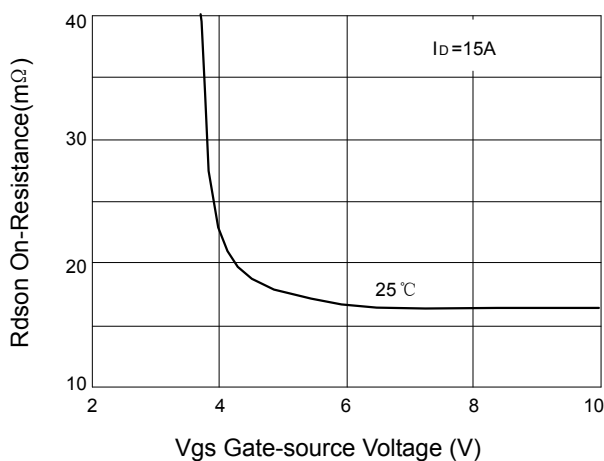


Figure 5 $R_{DS(on)}$ vs v_{gs}

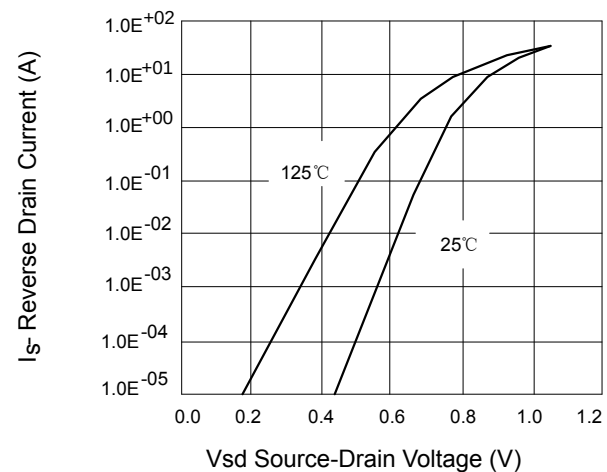


Figure 6 Source-drain diode forward

■ N-CHANNEL TYPICAL CHARACTERISTICS(Cont.)

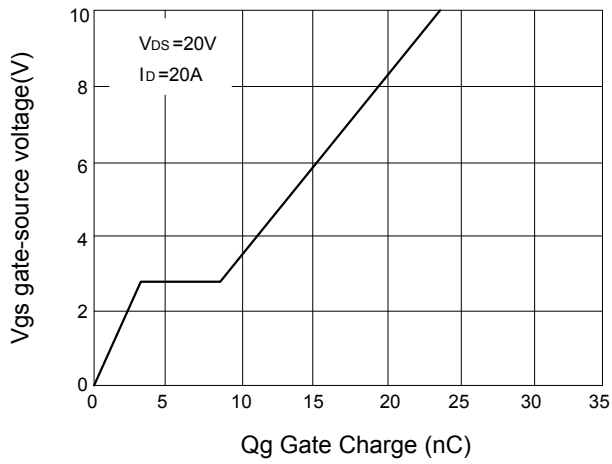


Figure 7 Gate charge

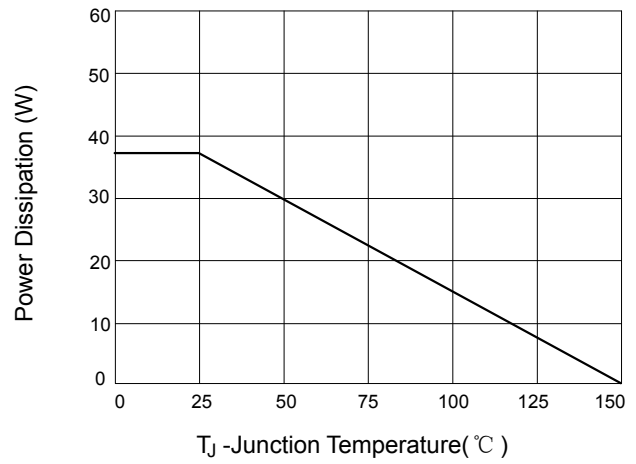


Figure 8 Power de-rating

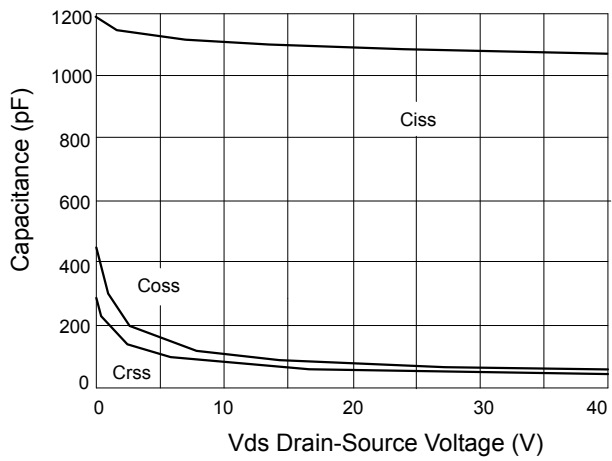


Figure 9 Capacitance vs. vds

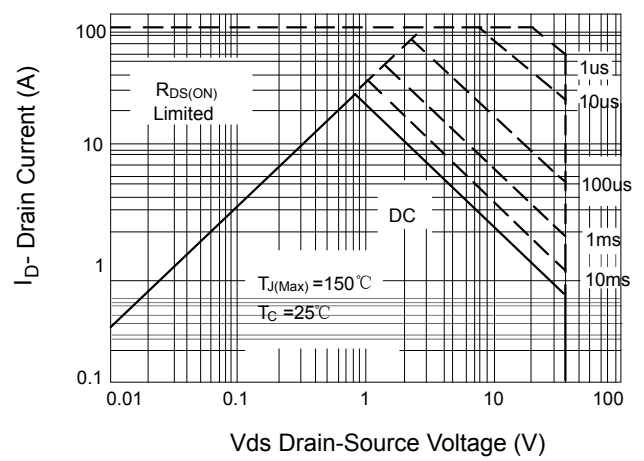


Figure 10 Safe operation area

■ P-CHANNEL TYPICAL CHARACTERISTICS

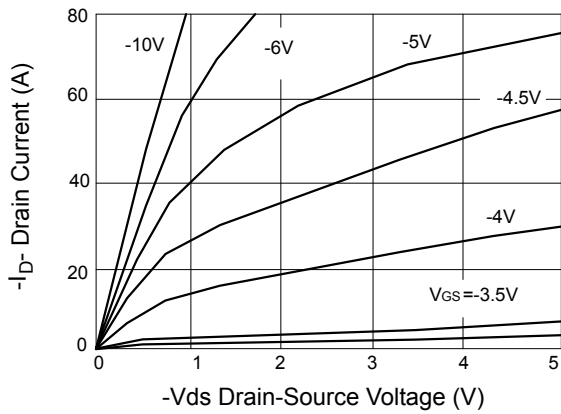


Figure 1 Output characteristics

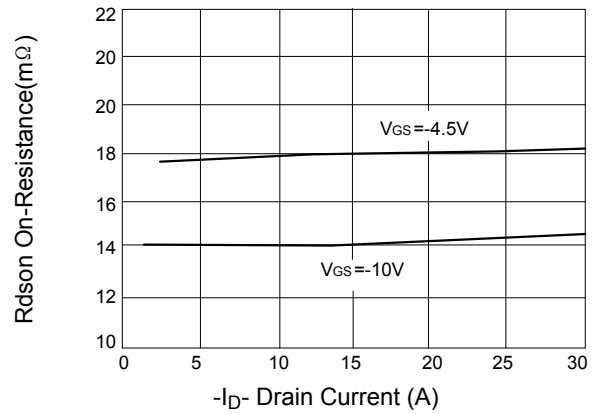


Figure 2 $R_{DS(on)}$ -drain current

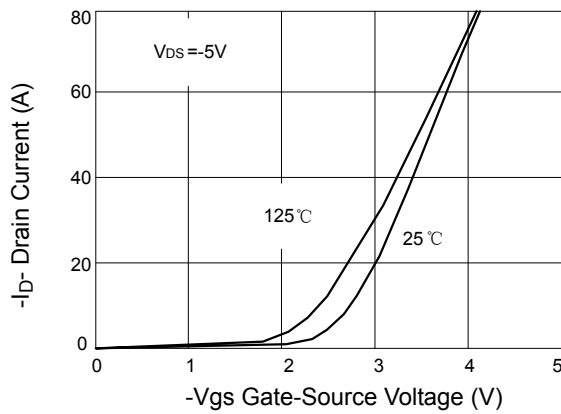


Figure 3 Transfer characteristics

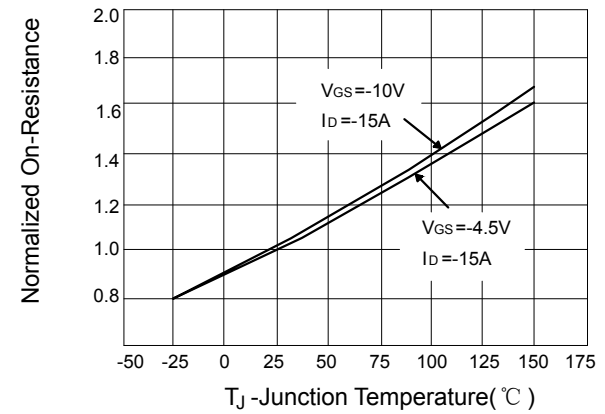


Figure 4 $R_{DS(on)}$ -junction temperature

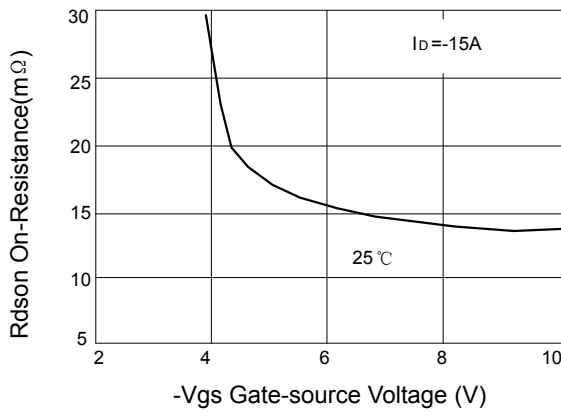


Figure 5 $R_{DS(on)}$ vs v_{gs}

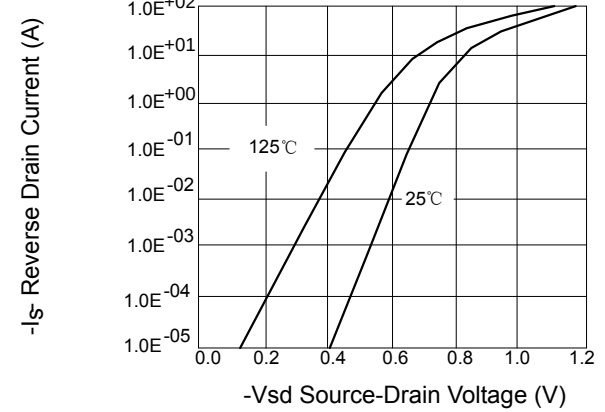


Figure 6 Source-drain diode forward

■ P-CHANNEL TYPICAL CHARACTERISTICS(Cont.)

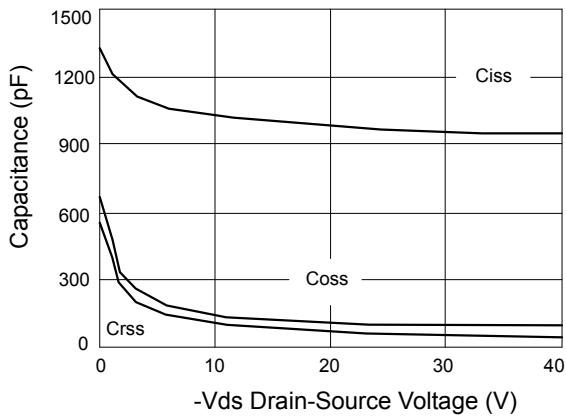


Figure 7 Capacitance vs. vds

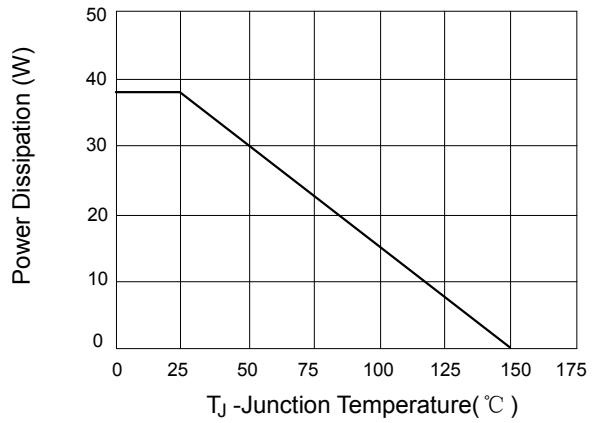


Figure 8 Power de-rating

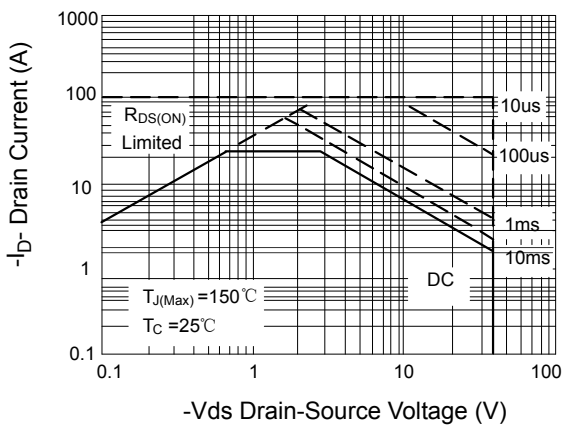


Figure 9 Safe operation area

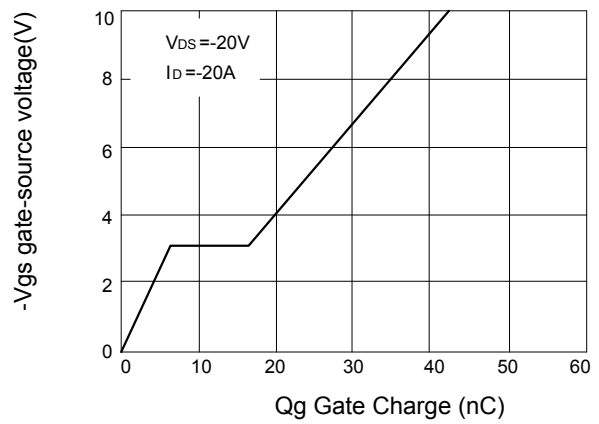


Figure 10 Gate charge

■ TO-252-4L PACKAGE OUTLINE DIMENSIONS

