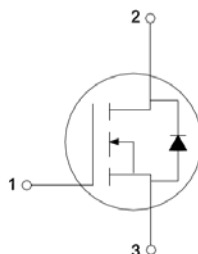


FEATURES

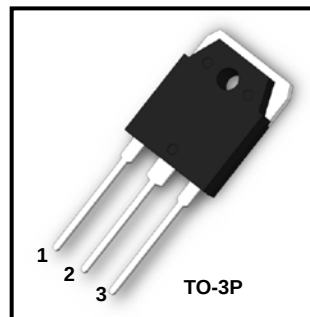
- ☐ Low drain-source ON resistance
- ☐ High forward transfer admittance
- ☐ Repetitive avalanche ratings
- ☐ Simple drive requirements
- ☐ Ease of paralleling

APPLICATIONS

- ☐ Switching power supplies
- ☐ Motor controls
- ☐ Inverters and choppers
- ☐ Audio amplifiers and energy pulse circuits



1.GATE
2.DRAIN
3.SOURCE



ABSOLUTE MAXIMUM RATINGS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
V_{DS}	Drain - Source Voltage	$T_J=25^{\circ}\text{C}$	500	V
V_{GS}	Gate - Source Voltage		± 20	V
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$	28	A
		$T_C=100^{\circ}\text{C}$	20	A
I_{DM}	Pulsed Drain Current	Limited by T_{jmax}	80	A
P_D	Maximum Power Dissipation		180	W
E_{AS}	Single Pulse Avalanche Energy		1000	mJ
I_{AR}	Avalanche Current		28	A
E_{AR}	Repetitive Avalanche Energy		25	mJ
T_J	Operating Junction		150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-55~150	$^{\circ}\text{C}$
Weight			12	g

THERMAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
$R_{th(ch-c)}$	Thermal resistance,channel to case		0.7	$^{\circ}\text{C}/\text{W}$
$R_{th(ch-a)}$	Thermal resistance,channel to ambient		40	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS $T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA		500			V
R _{DS(ON)}	Drain-Source ON Resistance	V _{GS} =10V, I _D =10A			0.19		Ω
		V _{GS} =10V, I _D =20A			0.20		Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} = V _{DS} , I _D =250μA		2.3	2.9	3.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V,V _{GS} =± 20V		-200		200	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =500V,V _{GS} =0V				200	μA
Q _g	Total Gate Charge	V _{DD} =400V, I _D =20A , V _{GS} =10V			136		nC
Q _{gs}	Gate-Source Charge				37		nC
Q _{gd}	Gate-Drain Charge				40		nC
g _{fs}	Forward Transconductance	V _{DS} =50V, I _D =10A			18		S
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f =1MHz			4900		pF
C _{oss}	Output Capacitance				990		pF
C _{rss}	Reverse Transfer Capacitance				330		pF
t _{d(on)}	Turn - on Delay Time	V _{DD} =300V,I _D =20A, R _G =5.1 Ω , V _{GS} =10V, R _L =15 Ω	T _j =25°C		35		ns
			T _j =125°C		40		ns
t _r	Rise Time		T _j =25°C		28		ns
			T _j =125°C		33		ns
t _{d(off)}	Turn - off Delay Time		T _j =25°C		120		ns
			T _j =125°C		125		ns
t _f	Fall Time		T _j =25°C		30		ns
			T _j =125°C		35		ns

Source-Drain RATINGS AND CHARACTERISTICS $T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{SD}	Continuous Source-Drain Current				20	A
I_{SDM}	Pulse Source-Drain Current				80	A
V_{SD}	Source-Drain Voltage	$I_{SD}=20A, V_{GS}=0V, T_J=25^{\circ}\text{C}$		0.85	1.6	V
t_{rr}	Reverse Recovery Time	$I_{SD}=20A, di_{SD}/dt=-100A/\mu s$ $T_J=25^{\circ}\text{C}$		495		ns
I_{RRM}	Max. Reverse Recovery Current			20		A
Q_{RRM}	Max. Reverse Recovery Charge			5.3		μC

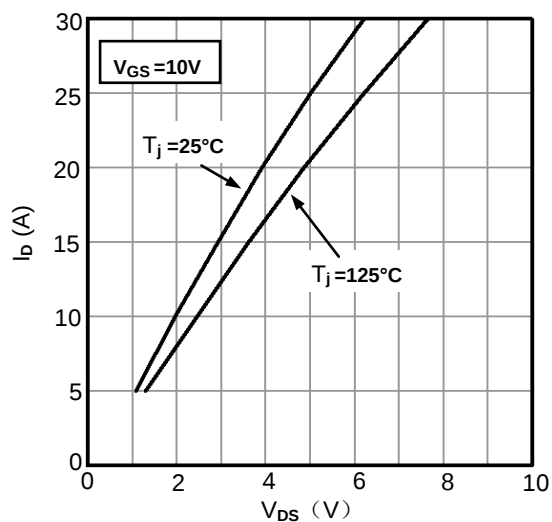


Figure1. Typical Output Characteristics

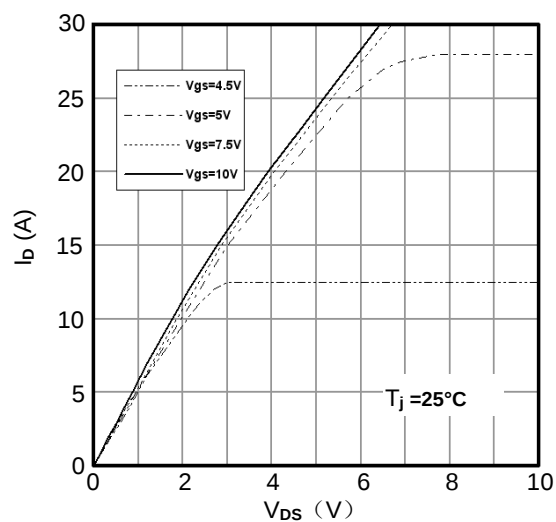


Figure2. Typical Output Characteristics

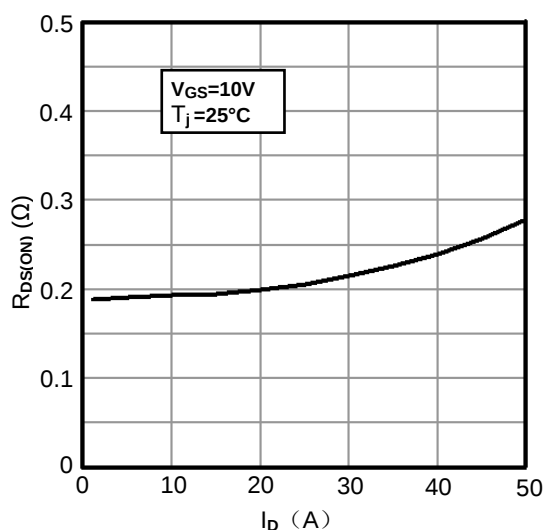
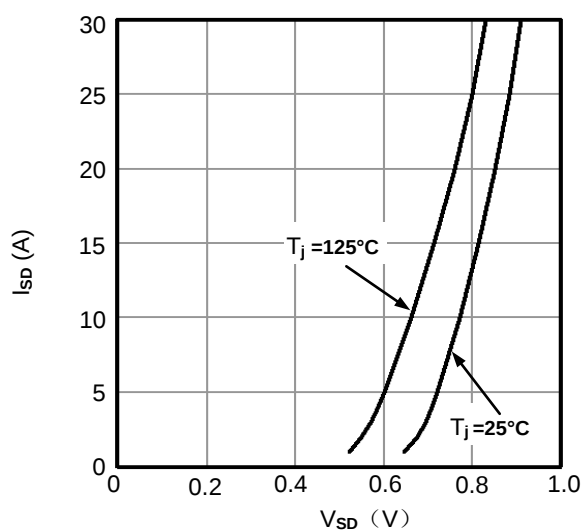
Figure3. Drain-Source ON Resistance vs. I_D 

Figure4. Source-Drain Voltage

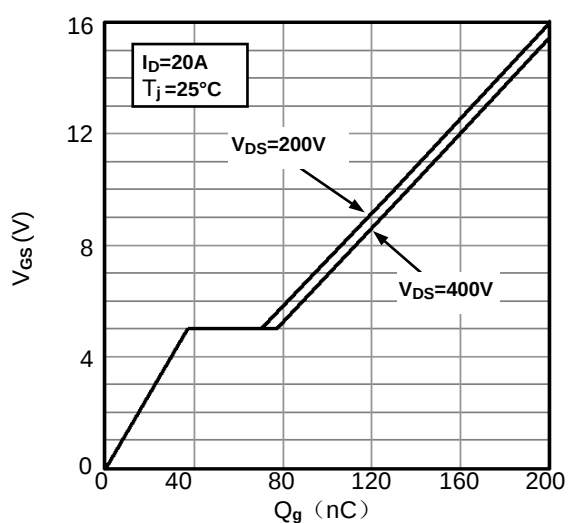
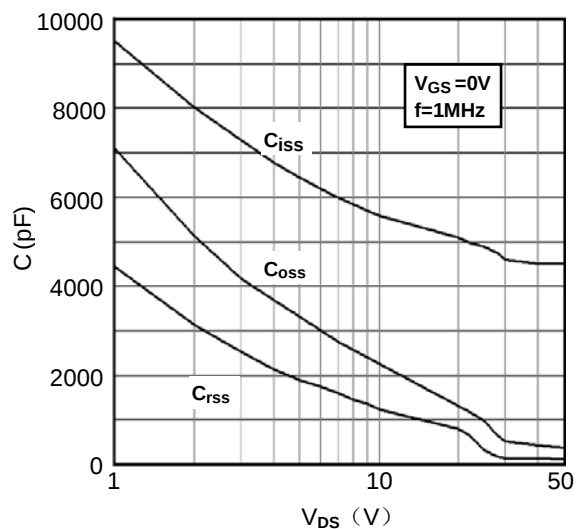


Figure5. Gate Charge characteristics

Figure6. Typical Capacitances vs. V_{DS}

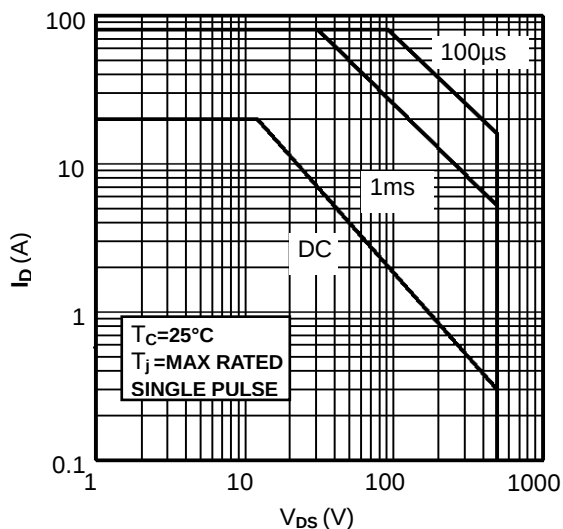


Figure 7. Forward Bias Safe Operating Area

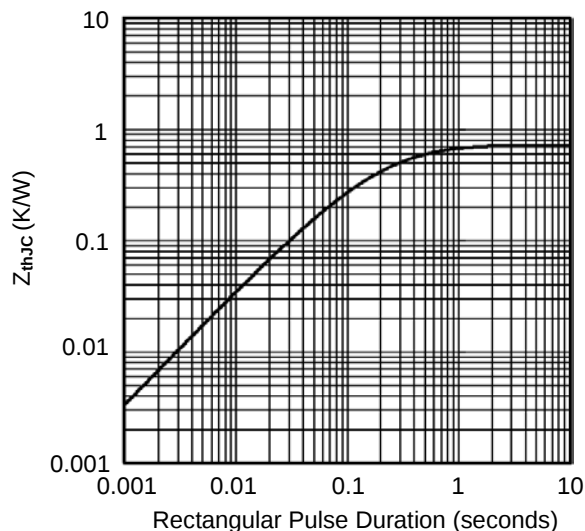


Figure 8. Transient Thermal Impedance

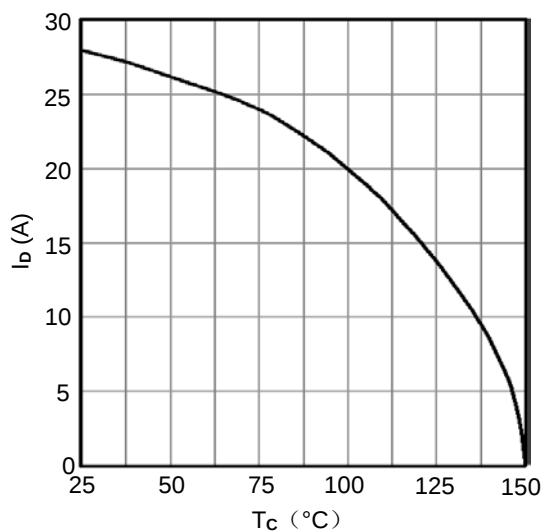


Figure 9. Maximum Continuous Drain Current vs. Case Temperature

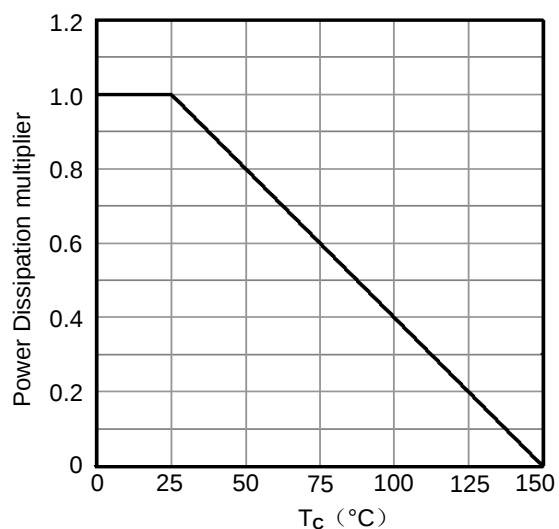


Figure 10. Normalized Power Dissipation vs. Case Temperature

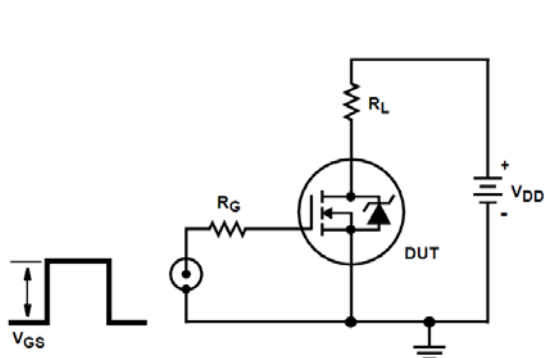


Figure 11. Switching Time Test Circuit

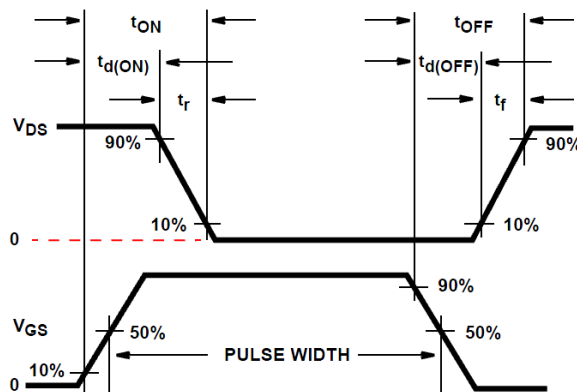


Figure 12. Resistive Switching Waveforms

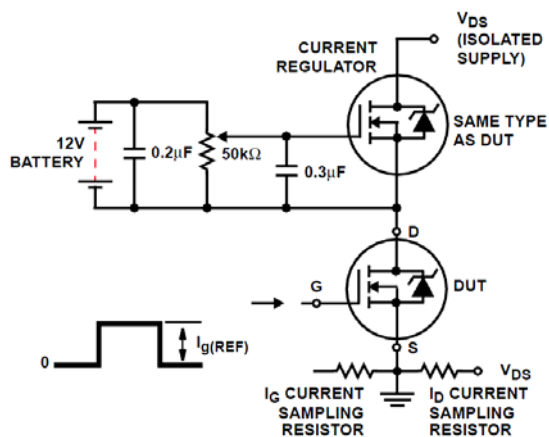


Figure13. Gate Charge Test Circuit

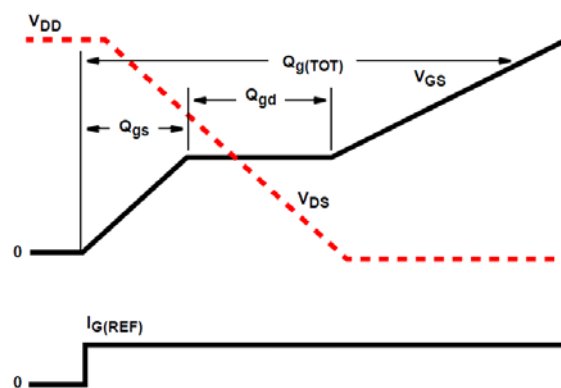
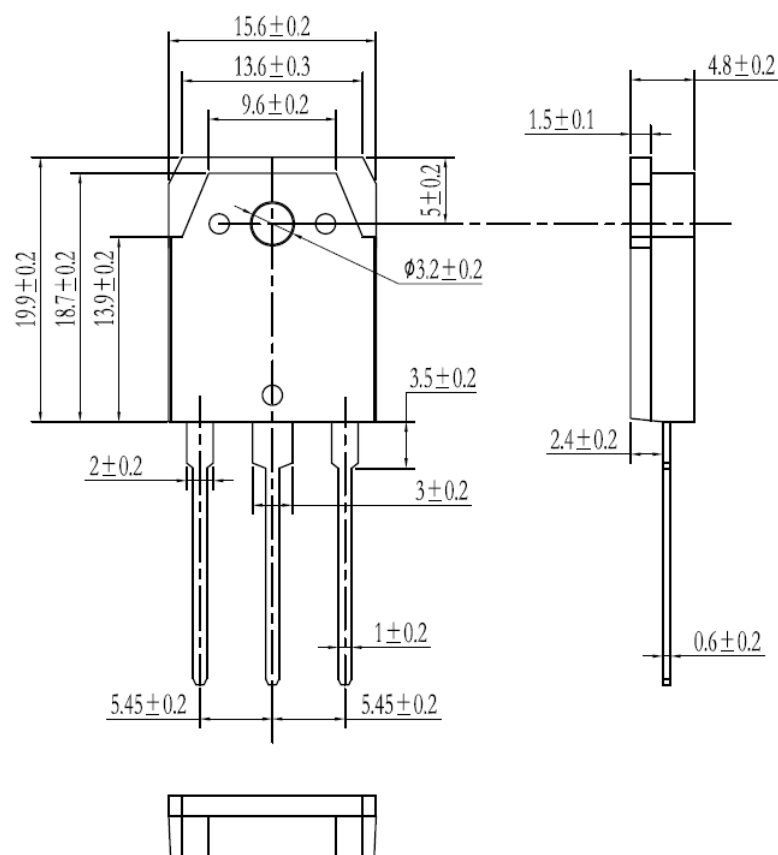


Figure14. Gate Charge Waveforms



Dimensions (mm)
Figure15. Package Outline