

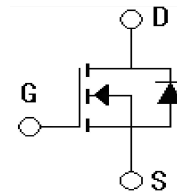
Features

- 150V/40A
 $R_{DS(on)}=29m\Omega(\text{typ.})@V_{GS}=10V$
- Low C_{rss} (Typical 41pF)
- Reliable and Rugged
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product



Applications

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



Absolute Ratings ($T_C=25^{\circ}\text{C}$)

Parameter	Symbol		Value	Unit
Drain-Source Voltage	V _{DSS}		150	V
Transient Gate-Source Voltage	V _{GSM}		±30	V
Continuous Gate-Source Voltage	V _{GSS}		±20	V
Drain Current -continuous	I _D	T=25℃	40	A
		T=100℃	28	A
Drain Current - pulse (note1)	I _{DM}		140	A
Single Pulsed Avalanche Energy （note 2）	E _{AS}		283.5	mJ
Power Dissipation	P _D	T _C =25℃	78	W
		T _C =100℃	31	W
Operating and Storage Temperature Range	T _j ,T _{STG}		-55~+150	℃
Maximum Lead Temperature for Soldering Purposes	T _L		300	℃

Electrical Characteristics($T_{CASE}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Off-Characteristics						
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	150	-	-	V
Drain cut-off current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$	-	-	1	μA
		$V_{DS}=150V, T_j=125^{\circ}\text{C}$	-	-	50	
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA

On-Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	3.0	3.8	5.0	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A (note3)	-	29	35	mΩ
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz (Note 4)	-	2447	-	pF
Output capacitance	C _{oss}		-	153	-	pF
Reverse transfer capacitance	C _{rss}		-	41	-	pF
Switching Characteristics						
Turn-On delay time	t _{d(on)}	V _{DD} =100V, I _D =20A, R _G =2.5Ω, V _{GS} =10V	-	28	-	ns
Turn-On rise time	t _r		-	30	-	ns
Turn-Off delay time	t _{d(off)}		-	95	-	ns
Turn-Off Fall time	t _f		-	40	-	ns
Total Gate Charge	Q _g	V _{DS} =100V, I _D =20A, V _{GS} =10V(note 4)	-	56	-	nC
Gate-Source charge	Q _{gs}		-	12	-	nC
Gate-Drain charge	Q _{gd}		-	18	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =10A (note3)	-	0.83	1.3	V
Diode Forward Current	I _S		-	-	40	A
Reverse recovery time	t _{rr}	V _{GS} =0V, I _F =40A dI _F /dt=100A/us	-	48	-	ns
Reverse recovery charge	Q _{rr}		-	78	-	nC

Thermal Characteristics

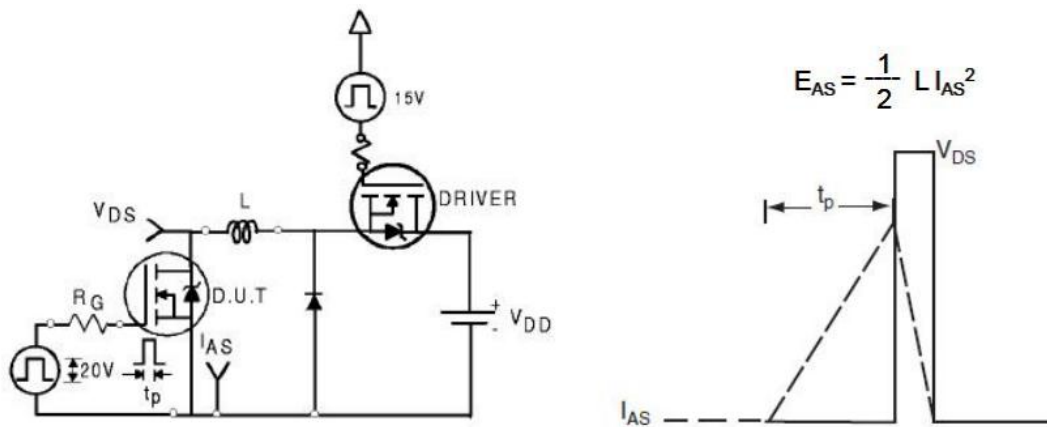
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case,Max	$R_{\theta JC}$	1.6	°C/W
Thermal Resistance, Junction-to-Ambient,Max	$R_{\theta JA}$	110	°C/W

Notes:

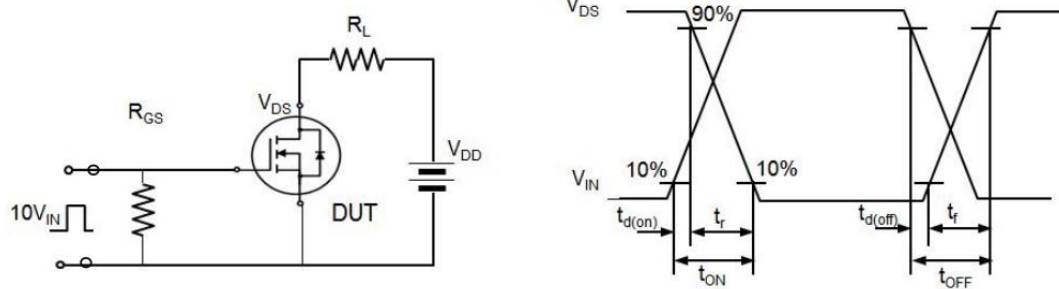
1. Pulse width limited by maximum junction temperature
2. $L=0.3mH, V_{GS}=10V, V_{DS}=100V$, Starting $T_J=25^\circ C$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
4. Essentially independent of operating temperature

Test Circuit

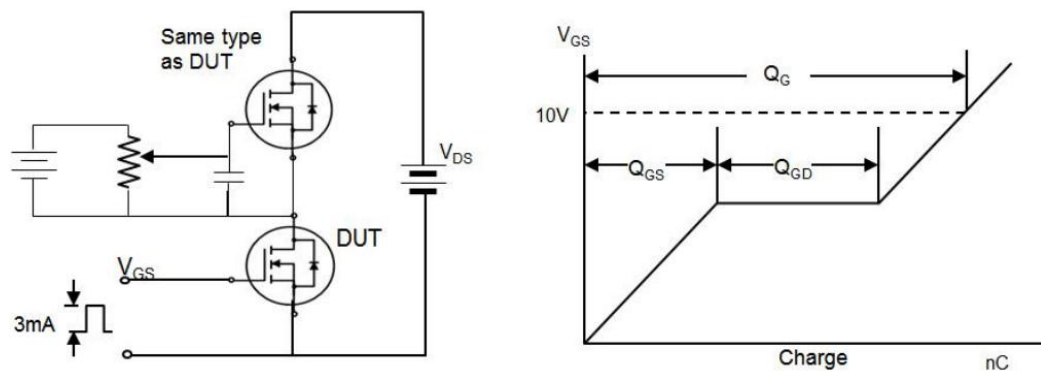
1) E_{AS} test Circuit



2) Gate charge test Circuit



3) Switch Time Test Circuit



Typical Electrical and Thermal Characteristics (Curves)

Figure 1: Power Dissipation

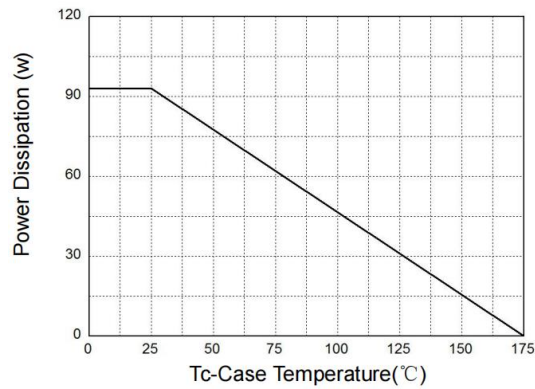


Figure 2: Drain Current

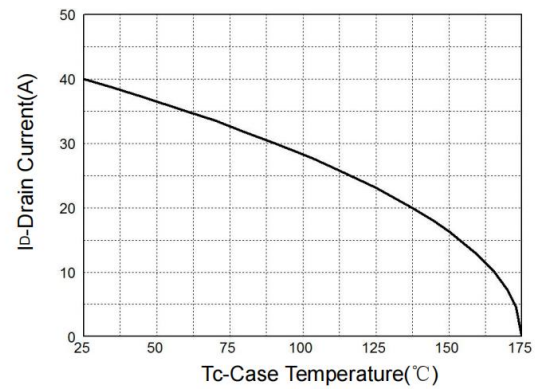


Figure 3: Safe Operation Area

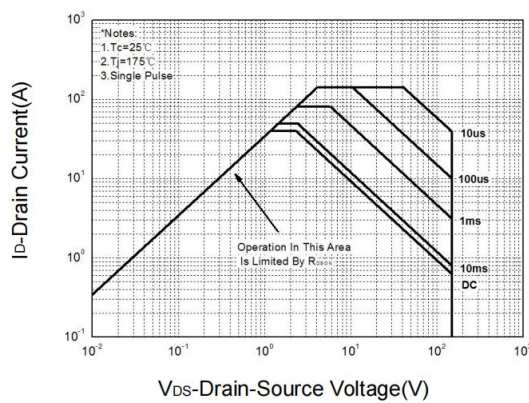


Figure 4: Thermal Transient Impedance

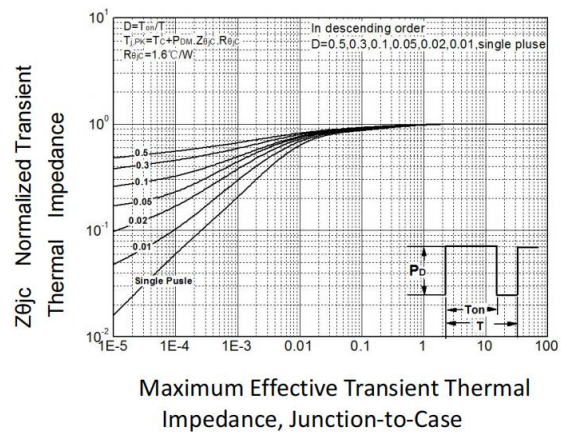


Figure 5: Output Characteristics

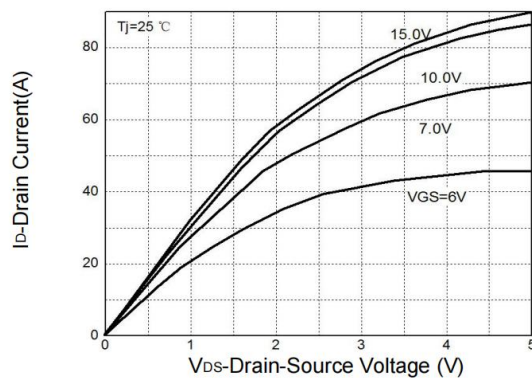


Figure 6: Drain-Source On Resistance

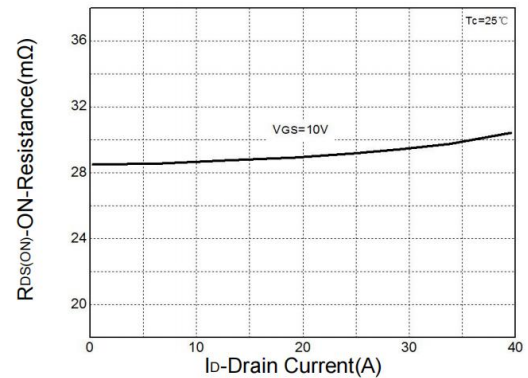


Figure 7: On-Resistance vs. Temperature

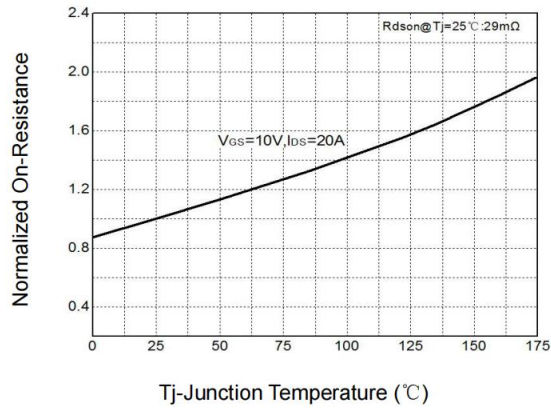


Figure 8: Source-Drain Diode Forward

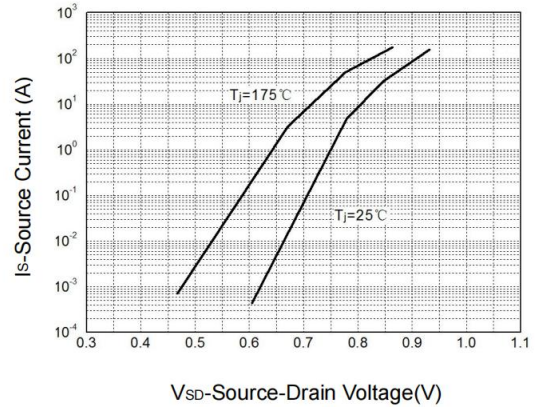


Figure 9: Capacitance Characteristics

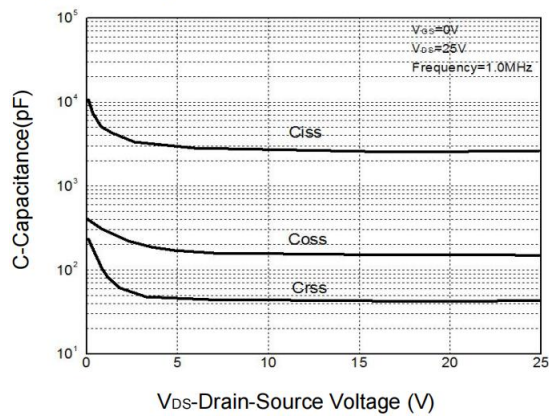
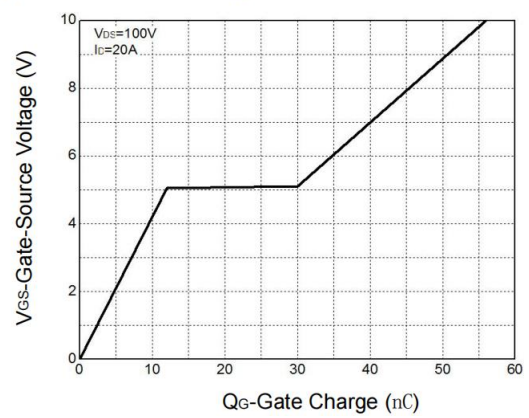


Figure 10: Gate Charge Characteristics



Package Mechanical DATA

