

■ FEATURES:

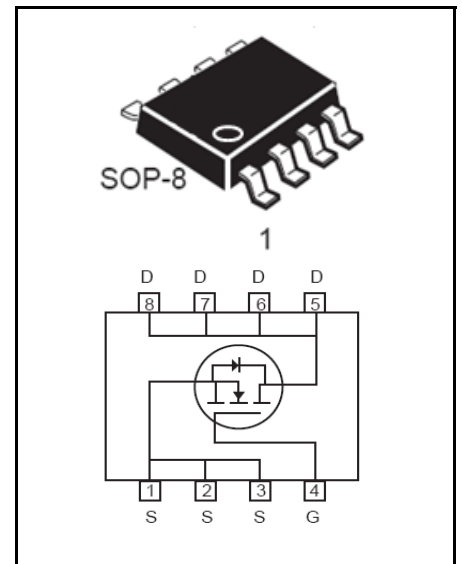
- ADVANCED TRENCH MOSFET PROCESS TECHNOLOGY
- SPECIAL DESIGNED FOR PWM, LOAD SWITCHING AND GENERAL PURPOSE APPLICATIONS
- ULTRA LOW NO-RESISTANCE WITH LOW GATE CHARGE
- FAST SWITCHING AND REVERSE BODY RECOVERY
- 150°C OPERATING TEMPERATURE

■ DESCRIPTION

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications

■ MAXIMUM RATINGS (T_c=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Drain-source Voltage	V _{DS}	80	V
gate-source Voltage	V _{GS}	±20	V
Continuous Drain Current (T _C =25°C)	I _D	14	A
Drain Current-Pulsed	I _{DM}	70	A
Total Dissipation	PD	3	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55-150	°C
Single Pulse Avalanche Energy (L=0.1mH)	EAS	35	mJ

■ MECHANICAL

■ ELECTRONIC CHARACTERISTICS (T_c=25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Drain-source Breakdown Voltage	B _V D _{SS}	V _{GS} =0V, I _D =250 μA	80		V
Gate Threshold Voltage	V _{GS} (TH)	V _{GS} =V _{DS} , I _D =250 μA	1.2	2.5	V
Drain-source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V		1	μA
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =10A		1.2	V
Gate-body Leakage Current (V _{DS} = 0)	I _{GS}	V _{GS} =±20V		±100	nA
Static Drain-source On Resistance	R _{DS} (ON)	V _{GS} =4.5V, I _D =10A		11	mΩ
		V _{GS} =10V, I _D =14A		8.8	mΩ
Thermal Resistance Junction-case	R _{thJ-A}			42	°C/W

■ DYNAMIC CHARACTERISTICS (T_c=25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Capacitance	C _{iss}	V _{DS} =35V, V _{GS} =0V, f=1.0MHZ	-	2250	2700	pF
output Capacitance	C _{oss}		-	-	300	pF
Reverse Transfer Capacitance	C _{rss}		-	-	16	pF
Gate resistance	R _G	V _{gsDCBias} =0V, Speed=MED	-	1.5	4	Ω

注: C_{iss}、C_{oss}、C_{rss}、R_G使用绍兴宏邦电子T342栅极等效电阻测试系统测试(美军标)。

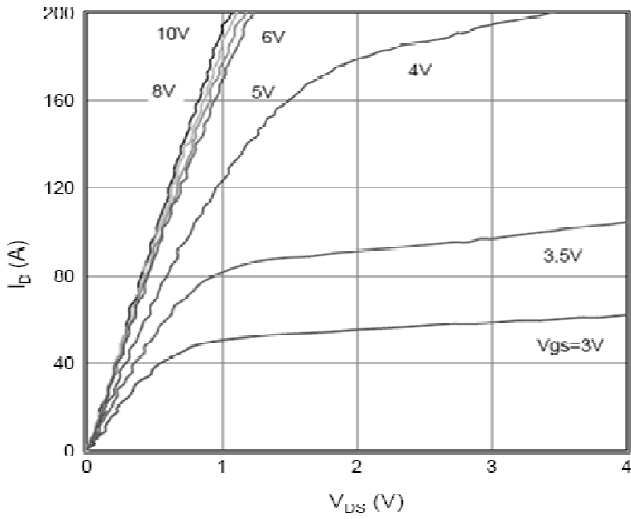
■ SWITCHING CHARACTERISTICS (T_c=25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Turn-On Delay Time	t _{d(on)}	V _{DS} =40V, I _D =14A, V _{GS} =10V, R _G =10Ω	-	9	-	ns
Turn-On Rise Time	t _r		-	4	-	ns
Turn-Off Delay Time	t _{d(off)}		-	30	-	ns
Turn-Off Rise Time	t _f		-	6	-	ns
Total Gate Charge	Q _g (4.5V)	V _{DS} =40V, I _D =14A, V _{GS} =10V	-	20	-	nC
Total Gate Charge	Q _g		-	40	-	nC
Gate-Source Charge	Q _{gs}		-	5	-	nC
Gate-Drain Charge	Q _{gd}		-	8	-	nC

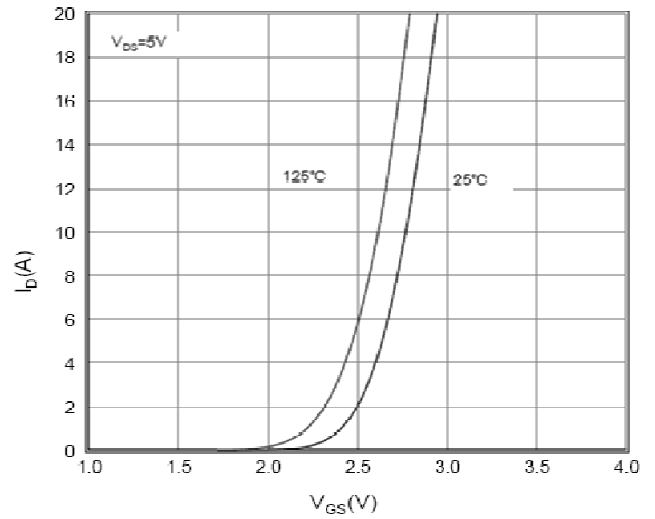
■ DRAIN-SOURCE DIODE MAXIMUM RATINGS AND CHARACTERISTICS (T_c=25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =10A	-	-	1.2	V
Reverse Recovery Time	t _{rr}	V _R =40V, I _S =14A, dI _F /dt=500A/μs	-	35	-	ns
Reverse Recovery Charge	Q _{rr}		-	102	-	nC

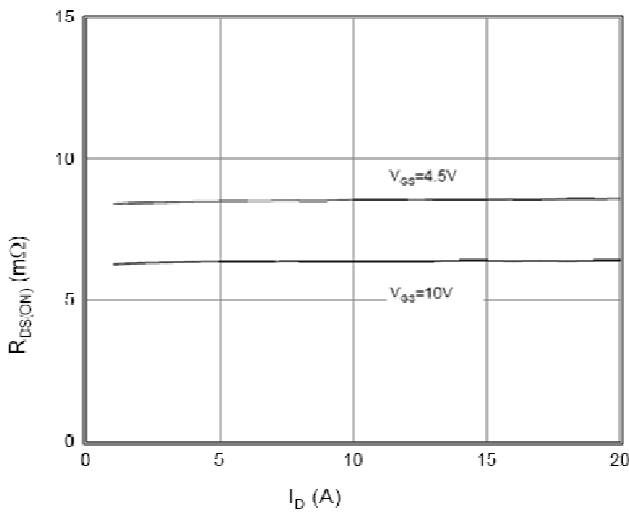
CHARACTERISTICS CURVE



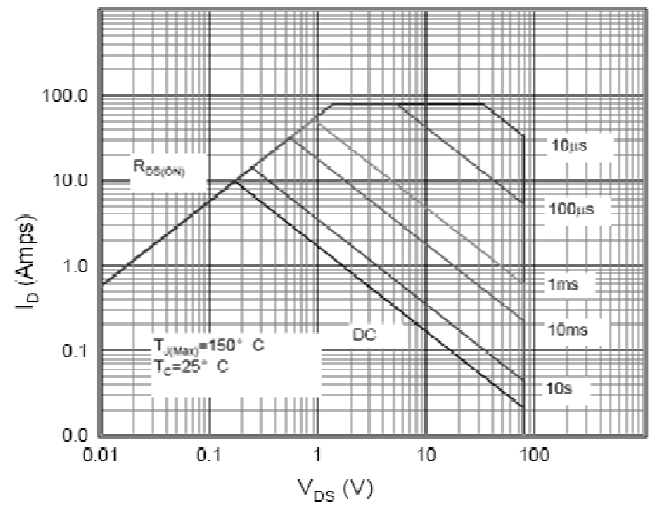
Output Characteristics



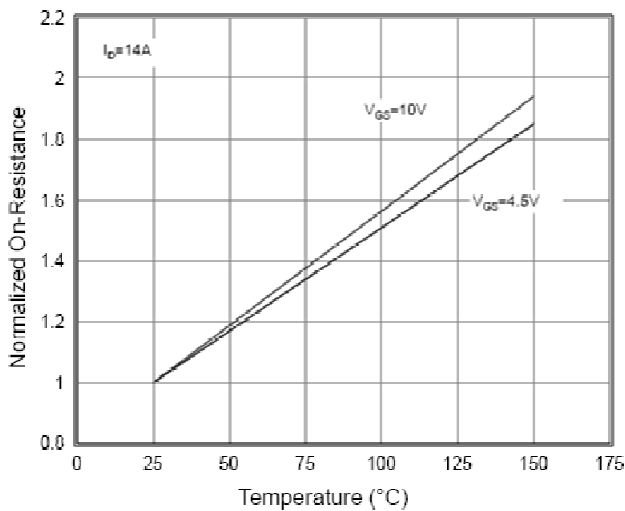
Transfer Characteristics



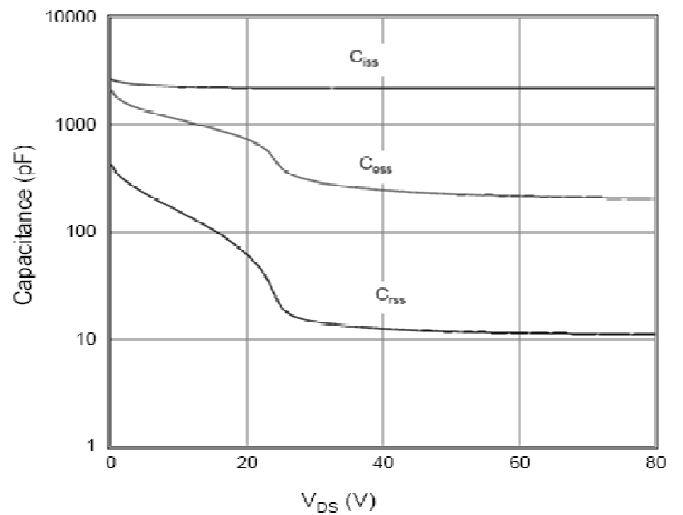
On Resistance Vs Drain Current



Safe Operating Area



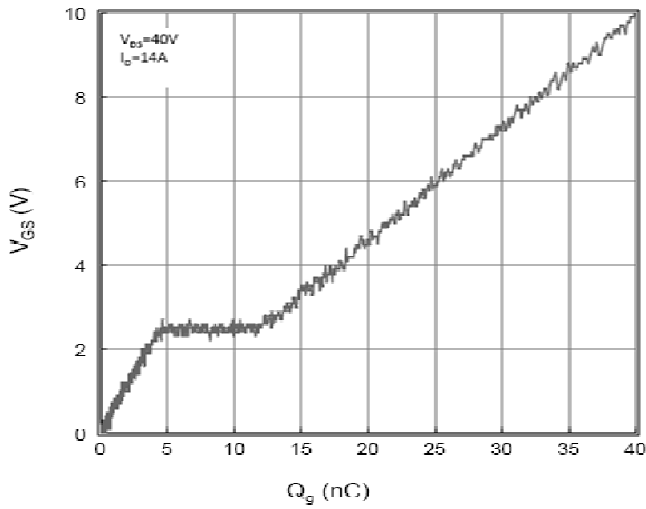
Rdson-Junction Temperature



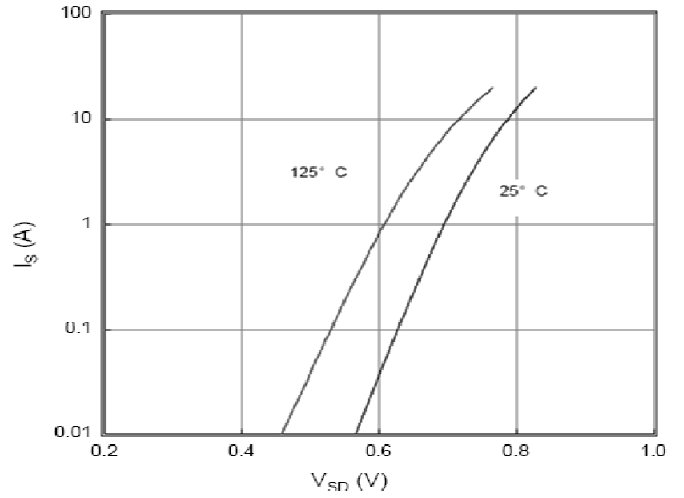
Capacitance



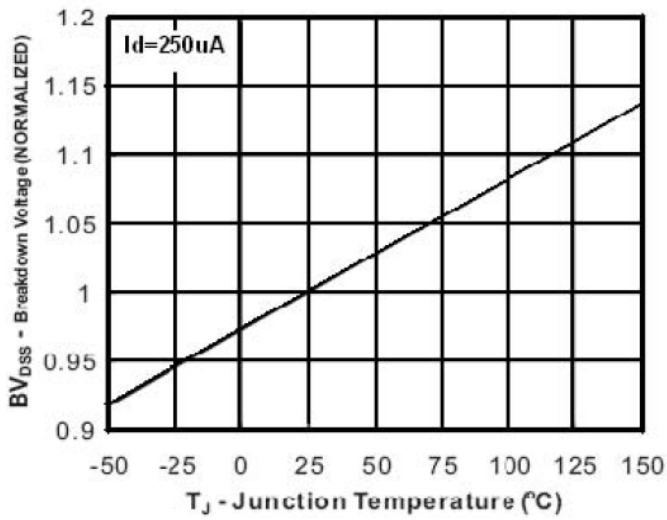
CHARACTERISTICS CURVE



Gate Charge Waveform



Source-Drain Diode Forward Voltage



Breakdown Voltage Vs Junction Temperature



SOP-8 MECHANICAL DATA

UNIT: mm

SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX
A	1.35		1.75	E	3.80		4.00
A1	0.10		0.25	E1	5.80		6.20
A2	1.35		1.55	e		1.27	
b	0.33		0.51	L	0.40		1.27
c	0.17		0.25	θ	0°		8°
D	4.70		5.10				

