

FEATURES:

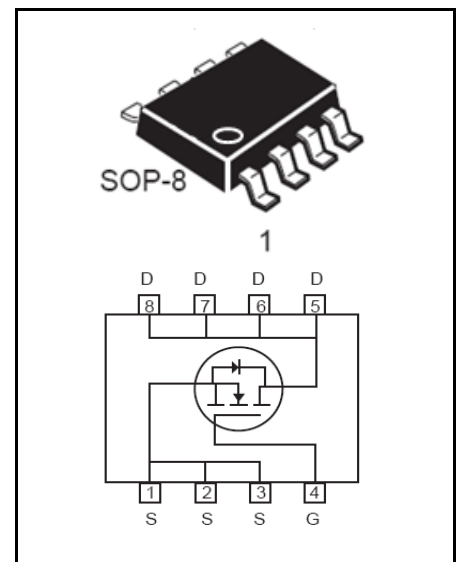
- ADVANCED TRENCH MOSFET PROCESS TECHNOLOGY
- SPECIAL DESIGNED FOR PWM, LOAD SWITCHING AND GENERAL PURPOSE APPLICATIONS
- ULTRA LOW NO-RESISTANCE WITH LOW GATE CHARGE
- FAST SWITCHING AND REVERSE BODY RECOVERY
- 175°C OPERATING TEMPERATURE

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}	60	V
gate-source Voltage	V _{GS}	±20	V
Continuous Drain Current (T _C =25°C)	I _D	21	A
Drain Current-Pulsed	I _{DM}	84	A
Total Dissipation	PD	3.1	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55-150	°C
Single Pulse Avalanche Energy (L=0.3mH)	EAS	245	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	60		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} =60V, V _{GS} =0V		1	uA
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =10A		1.2	V
Gate-body Leakage Current (V _{DS} = 0)	I _{GSS}	V _{GS} =±20V		±100	nA
Static Drain-source On Resistance	R _{DS} (ON)	V _{GS} =4.5V I _D =20A		6.3	mΩ
		V _{GS} =10V I _D =20A		4.3	mΩ
Thermal Resistance Junction-case	R _{thJ-C}			40.3	°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	-	3250	-	pF
output Capacitance	C _{oss}		-	1200	-	pF
Reverse Transfer Capacitance	C _{rss}		-	45	-	pF
Gate resistance	R _G	V _{gsDCBias} =0V, Speed=MED	-	1.5	-	Ω

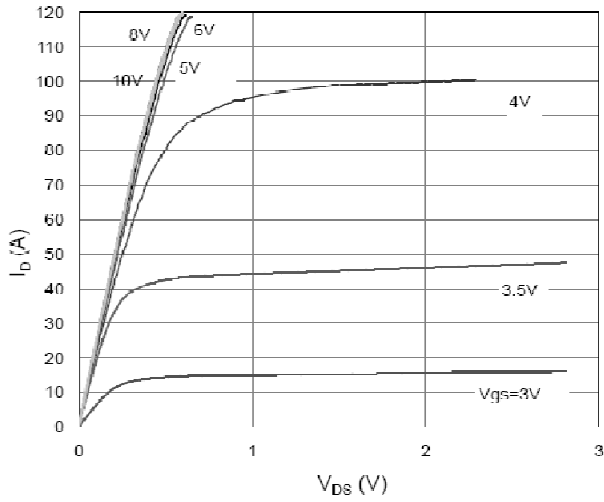
■ SWITCHING CHARACTERISTICS (T_c=25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V, I _D =20A, V _{GS} =10V, R _G =10Ω	-	12	-	ns
Turn-On Rise Time	t _r		-	10	-	ns
Turn-Off Delay Time	t _{d(off)}		-	55	-	ns
Turn-Off Rise Time	t _f		-	15	-	ns
Total Gate Charge	Q _g (4.5V)	V _{DS} =30V, I _D =20A, V _{GS} =10V	-	24	-	nC
Total Gate Charge	Q _g		-	49	-	nC
Gate-Source Charge	Q _{gs}		-	8	-	nC
Gate-Drain Charge	Q _{gd}		-	9	-	nC

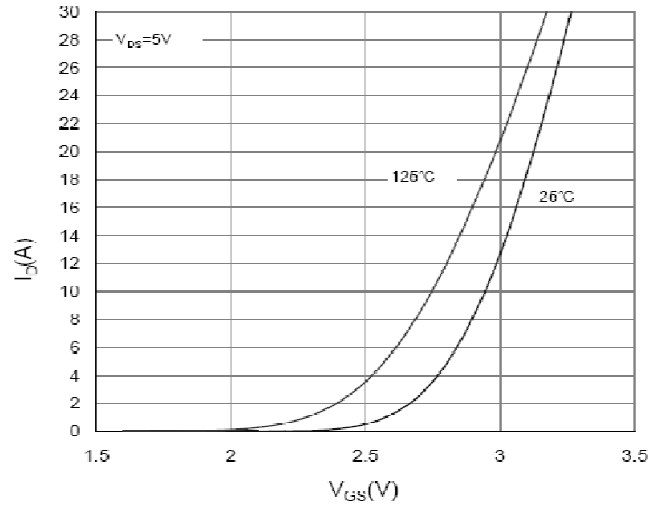
■ DRAIN-SOURCE DIODE MAXIMUM RATINGS AND CHARACTERISTICS (T_c=25°C)

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 =30V, I _F =20A, di/dt=300A/μs	-	50	-	ns
Reverse Recovery Charge	Q _{rr}		-	120	-	nC

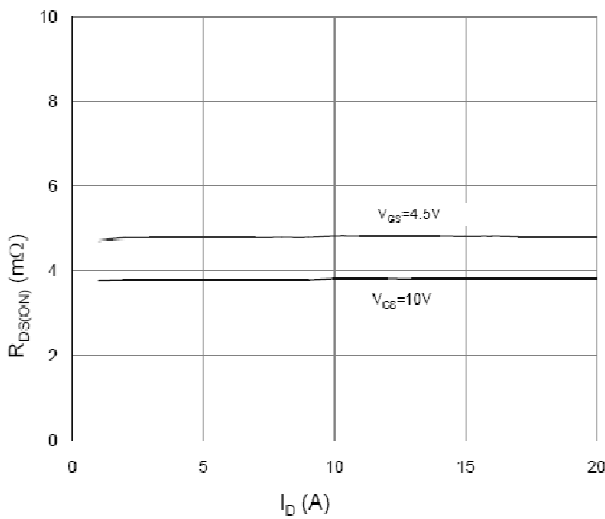
CHARACTERISTICS CURVE



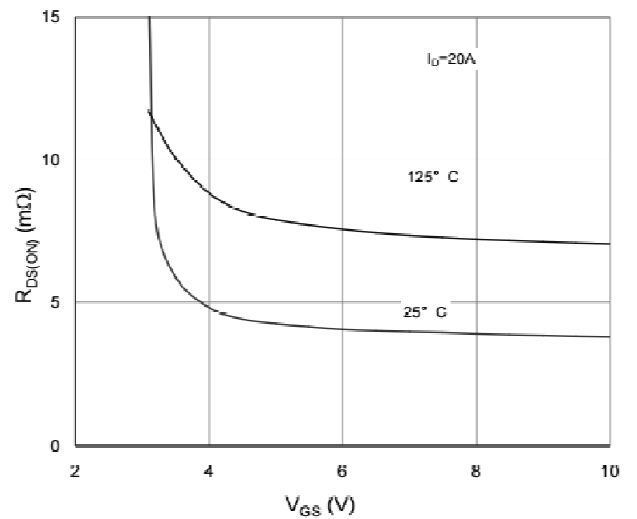
Output Characteristics



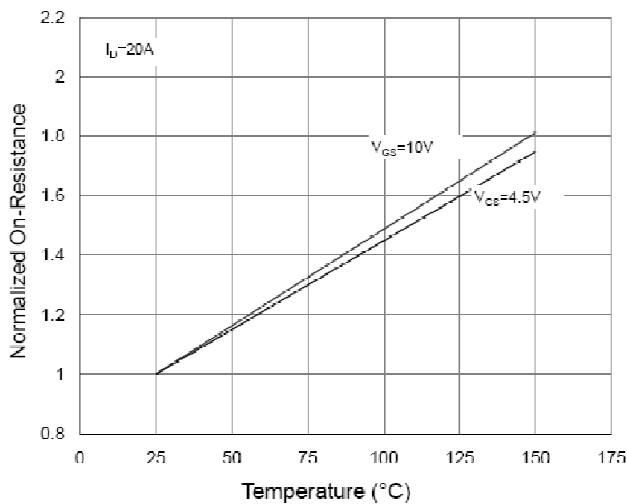
Transfer Characteristics



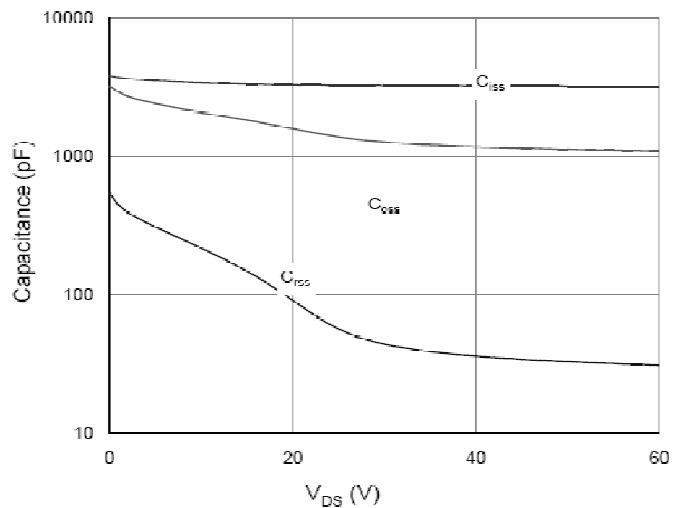
On Resistance Vs Drain Current



On-Resistance vs. Gate-Source Voltage

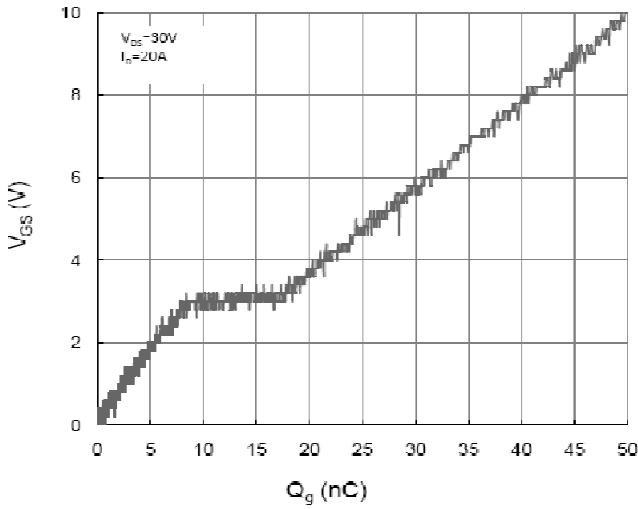


Rdson-Junction Temperature

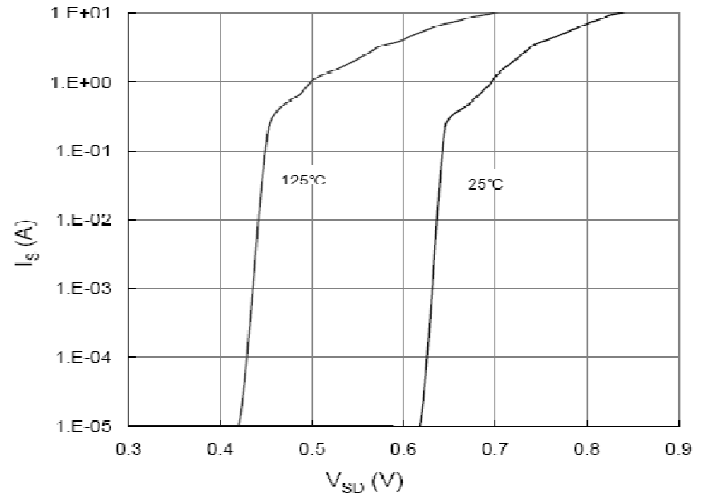


Capacitance

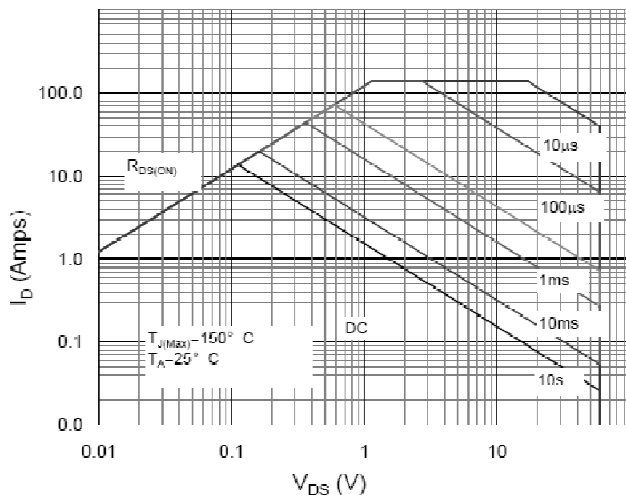
CHARACTERISTICS CURVE



Gate Charge Waveform



Source-Drain Diode Forward Voltage



Maximum Safe Operating Area

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				

