

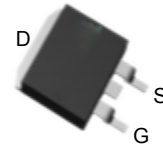
Features

- 80V/110A,
 $R_{DS(ON)} = 5.4m\Omega$ (typ.) @ $V_{GS} = 10V$
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)

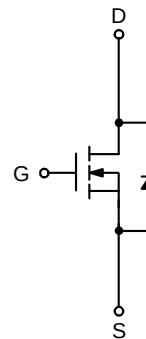
Applications

- High Efficiency Synchronous Rectification in SMPS.
- Uninterruptible Power Supply.
- High Speed Power Switching.
- Hard Switched and High Frequency Circuits.

Pin Description



Top View of TO-263



N-Channel MOSFET

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _A =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		80	V
V _{GSS}	Gate-Source Voltage		±25	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _C =25°C	110	A
I _D	Continuous Drain Current	T _C =25°C	110	
		T _C =100°C	66	
I _{DM}	Pulsed Drain Current	T _C =25°C	320	
P _D	Maximum Power Dissipation	T _C =25°C	125	W
		T _C =100°C	50	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	1	°C/W
I _D	Continuous Drain Current	T _A =25°C	11	A
		T _A =70°C	9	
P _D	Maximum Power Dissipation	T _A =25°C	2	W
		T _A =70°C	1.25	
R _{θJA}	Thermal Resistance-Junction to Ambient	Steady State	62.5	°C/W
I _{AS} ^c	Avalanche Current, Single pulse (L=0.5mH)		28	A
E _{AS} ^c	Avalanche Energy, Single pulse (L=0.5mH)		196	mJ

Note a : Bond wire current limit is 80A.

Note b : Pulse width limited by max. junction temperature.

Note c : UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature $T_J=25^{\circ}\text{C}$).

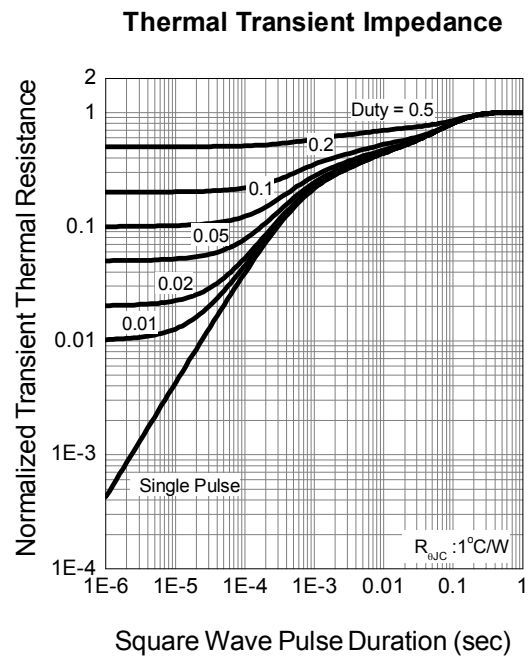
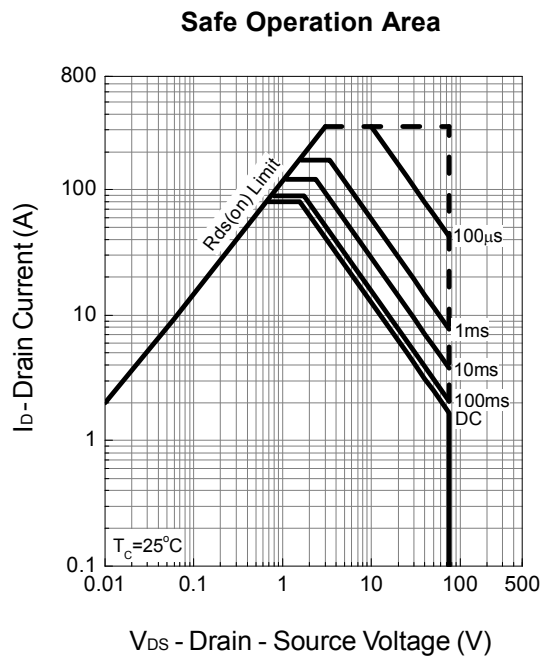
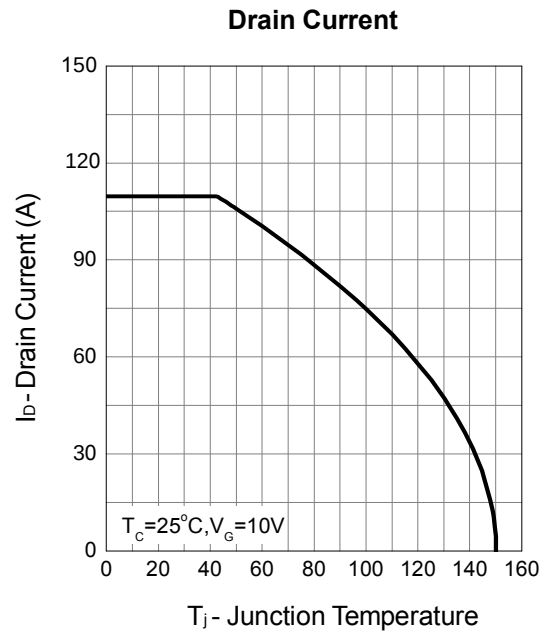
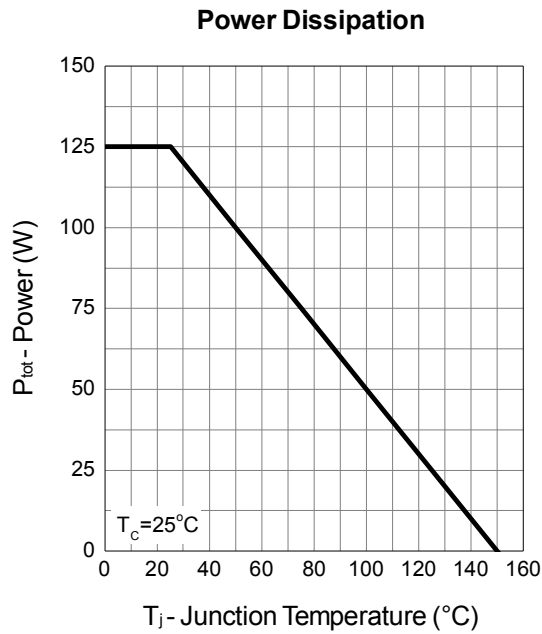
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	80	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =88V, V _{GS} =0V T _J =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =40A	-	5.4	6.5	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =20A, V _{GS} =0V	-	0.8	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =40A, dI _{SD} /dt=100A/μs	-	30	-	ns
Q _{rr}	Reverse Recovery Charge		-	32	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	0.6	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V, Frequency=1.0MHz	-	3000	3900	pF
C _{oss}	Output Capacitance		-	350	-	
C _{rss}	Reverse Transfer Capacitance		-	175	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	16	29	ns
t _r	Turn-on Rise Time		-	20	36	
t _{d(OFF)}	Turn-off Delay Time		-	47	85	
t _f	Turn-off Fall Time		-	35	63	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _{DS} =40A	-	57	75	nC
Q _{gs}	Gate-Source Charge		-	15	-	
Q _{gd}	Gate-Drain Charge		-	16	-	

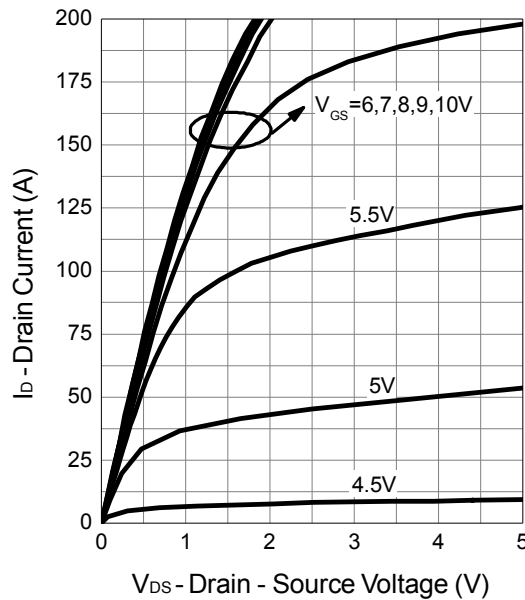
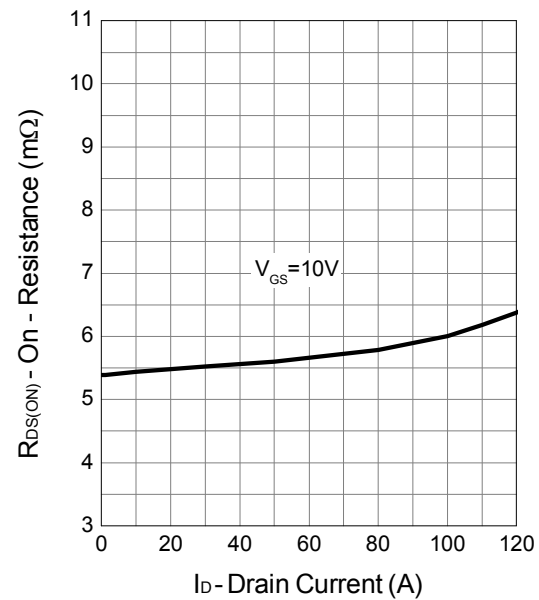
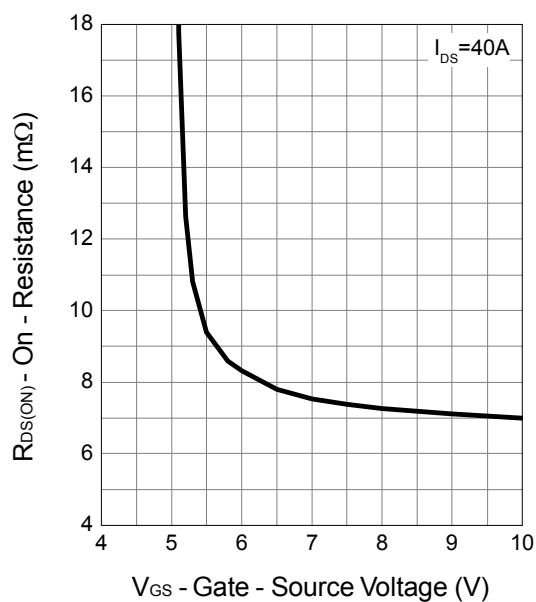
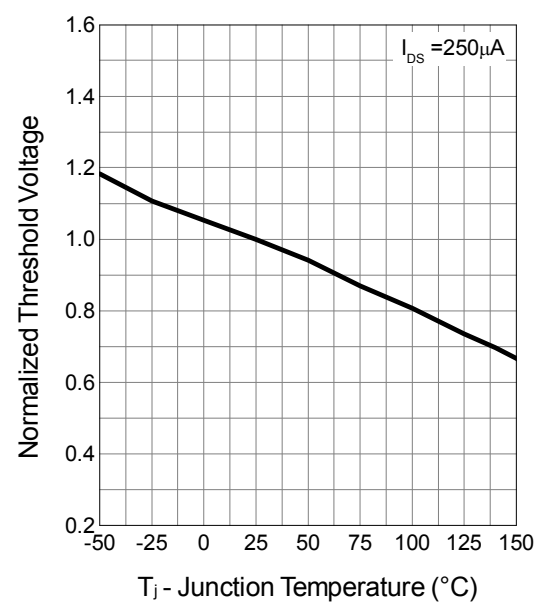
Note d Pulse test ; pulse width≤300μs, duty cycle≤2%.

Note e Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

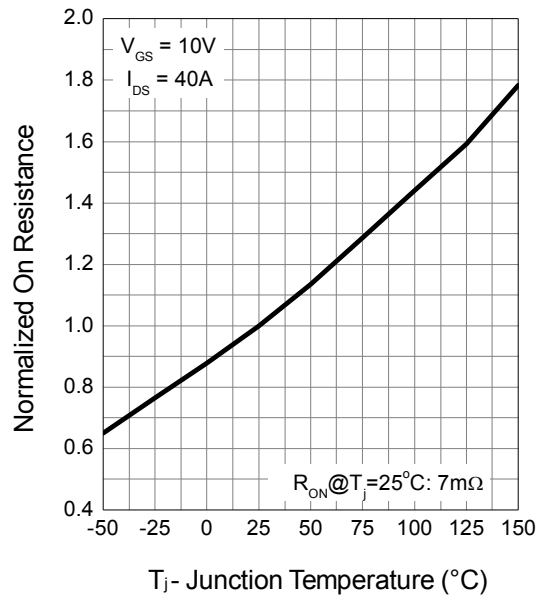


Typical Operating Characteristics (Cont.)

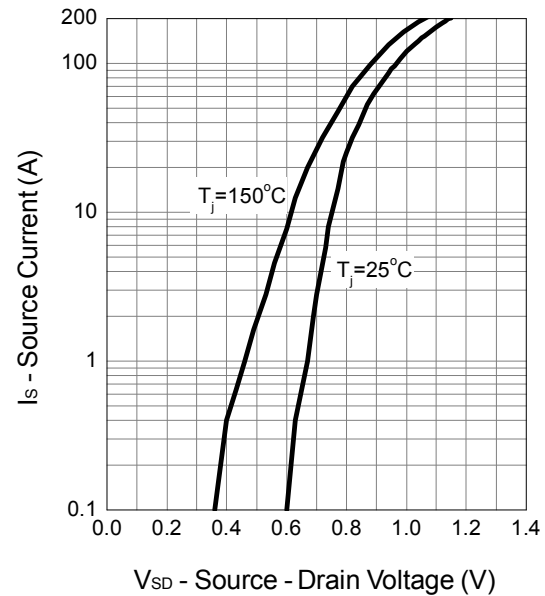
Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


Typical Operating Characteristics (Cont.)

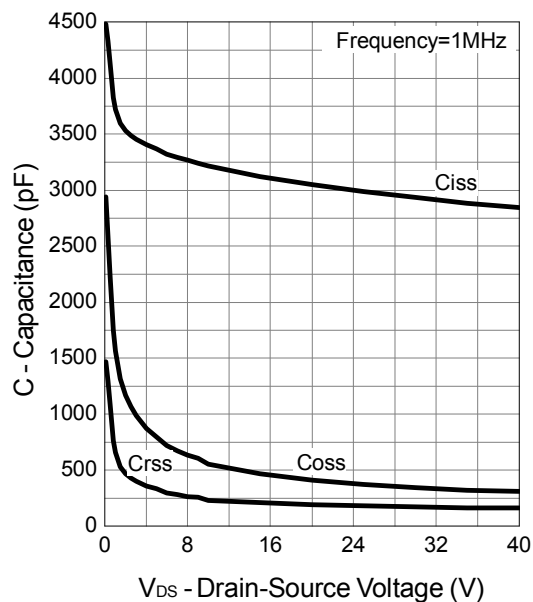
Drain-Source On Resistance



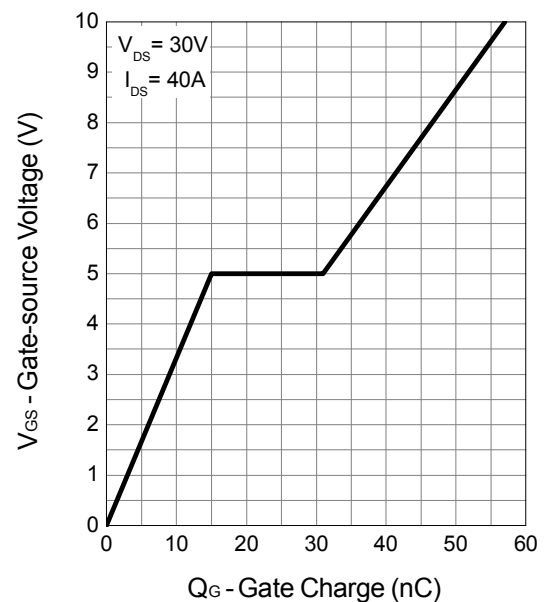
Source-Drain Diode Forward



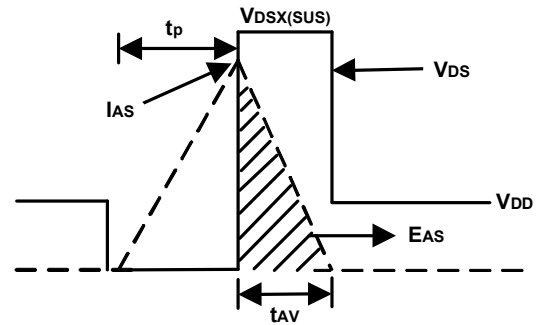
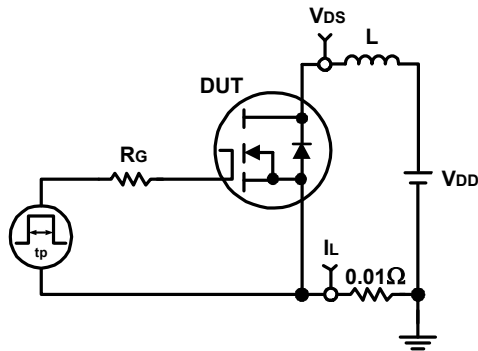
Capacitance



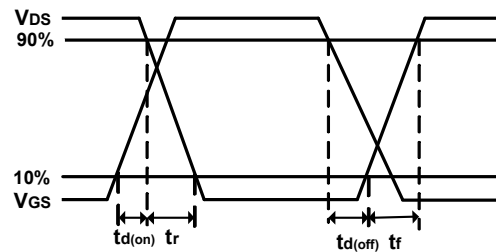
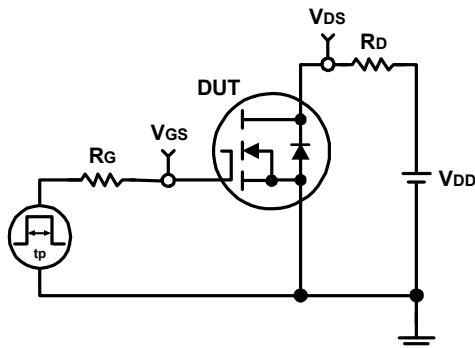
Gate Charge



Avalanche Test Circuit and Waveforms

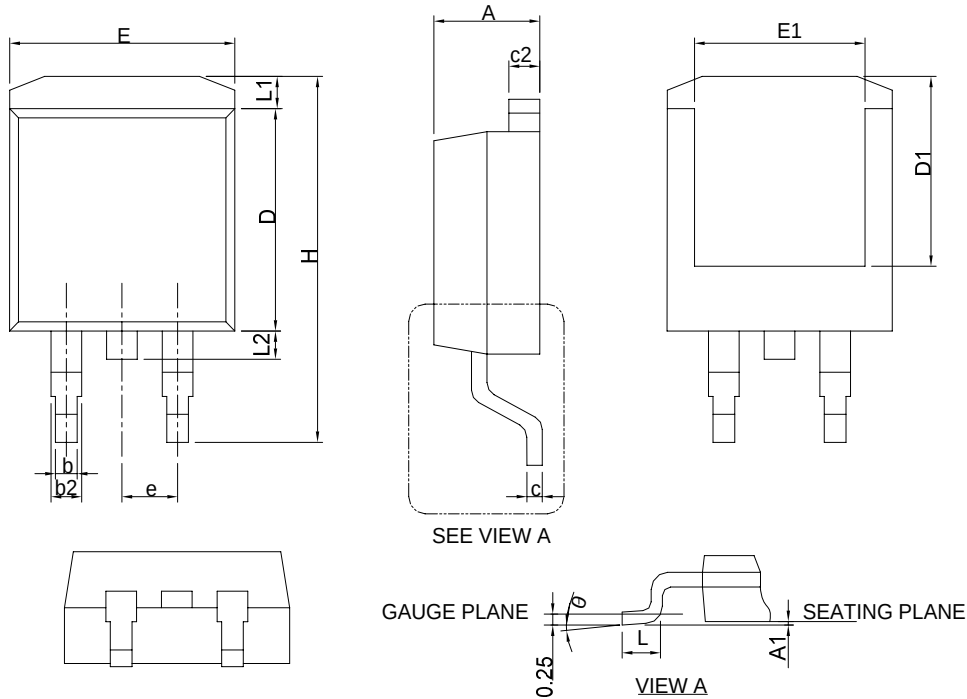


Switching Time Test Circuit and Waveforms



Package Information

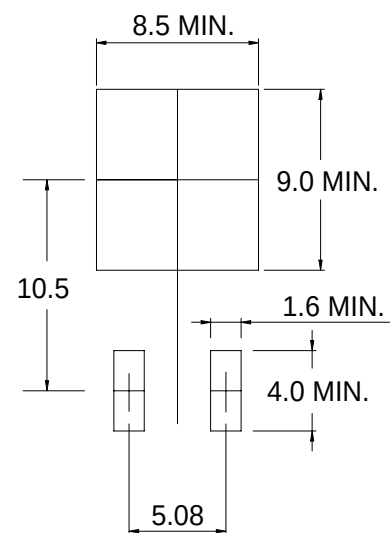
TO-263



SYMBOL	TO-263			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.06	4.83	0.160	0.190
A1	0.00	0.25	0.000	0.010
b	0.51	0.99	0.020	0.039
b2	1.14	1.78	0.045	0.070
c	0.38	0.74	0.015	0.029
c2	1.14	1.65	0.045	0.065
D	8.38	9.65	0.330	0.380
D1	6.00	9.00	0.236	0.354
E	9.65	11.43	0.380	0.450
E1	6.22	9.00	0.245	0.354
e	2.54 BSC		0.100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	-	1.68	-	0.066
L2	-	1.78	-	0.070
θ	0°	8°	0°	8°

Note : Follow JEDEC TO-263 AB.

RECOMMENDED LAND PATTERN



UNIT: mm