

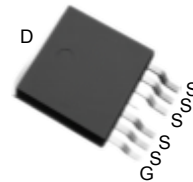
Features

- 600V/70A,
 $R_{DS(ON)} = 0.06\Omega(\text{typ.}) @ V_{GS} = 10V$
- Reliable and Rugged
- Avalanche Rated
- Lead Free and Green Devices Available
(RoHS Compliant)
- 100% UIS + R_g Tested

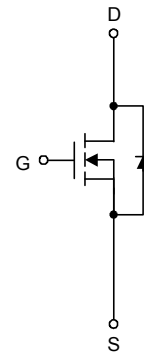
Applications

- AC/DC Power Conversion in Switched Mode Power Supplies (SMPS).
- Uninterruptible Power Supply (UPS),
- Adapter.

Pin Description



TO-263-6



N-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		600	V
V _{GSS}	Gate-Source Voltage		±30	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current		70	A
I _{DM}	Pulse Drain Current Tested	T _C =25°C	210	A
I _D	Continuous Drain Current	T _C =25°C	70	A
		T _C =100°C	28	
P _D	Maximum Power Dissipation	T _C =25°C	227	W
		T _C =100°C	90.8	
R _{θJC}	Thermal Resistance-Junction to Case		0.55	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient		62.5	
Drain-Source Avalanche Ratings				
dv/dt ^c	MOSFET dv/dt ruggedness		50	V/ns
E _{AS} ^d	Avalanche Energy, Single Pulsed		80	mJ
I _{AS} ^d	Avalanche Current		40	A

Note a : Limited by maximum junction temperature.

Note b : Bond wire current limit.

Note c : $V_{DS}=480\text{V}$, $I_D=26\text{A}$.

Note d : $I_D=3.5\text{A}$, $V_{DD}=50\text{V}$, $T_J=25^\circ\text{C}$.

Note e : Repetitive Rating : Pulse width limited by maximum junction temperature.

Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

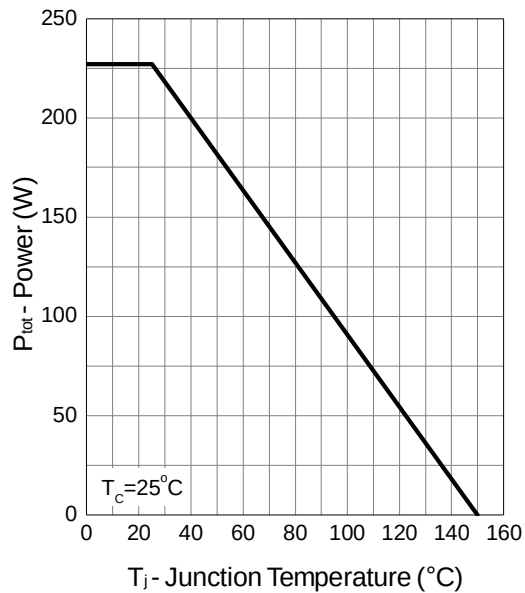
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA T _J =150°C	600 -	- 700	- -	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =480V, V _{GS} =0V T _J =150°C	- -	- -	1 300	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2.5	3.5	4.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±30V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^f	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =13A	-	0.06	0.07	Ω
Diode Characteristics						
V _{SD} ^f	Diode Forward Voltage	I _{SD} =26A, V _{GS} =0V	-	0.97	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =26A, V _R =360V dI _{SD} /dt=100A/μs	-	264	-	ns
Q _{rr}	Reverse Recovery Charge		-	3.4	-	μC
I _{rm}	Peak Reverse Recovery Current		-	25	-	A
Dynamic Characteristics ^g						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1.8	-	Ω
C _{iSS}	Input Capacitance	V _{GS} =0V, V _{DS} =25V, Frequency=1.0MHz	-	3016	4430	pF
C _{oSS}	Output Capacitance		-	1950	-	
C _{rSS}	Reverse Transfer Capacitance		-	39	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =400V, R _L =15.4Ω, I _{DS} =26A, V _{GEN} =10V, R _G =6Ω	-	29	-	ns
T _r	Turn-on Rise Time		-	10	-	
t _{d(OFF)}	Turn-off Delay Time		-	69	-	
T _f	Turn-off Fall Time		-	5.7	-	
Gate Charge Characteristics ^g						
Q _g	Total Gate Charge	V _{DS} =480V, V _{GS} =10V, I _{DS} =13A	-	83	107	nC
Q _{gs}	Gate-Source Charge		-	155	-	
Q _{gd}	Gate-Drain Charge		-	41	-	

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

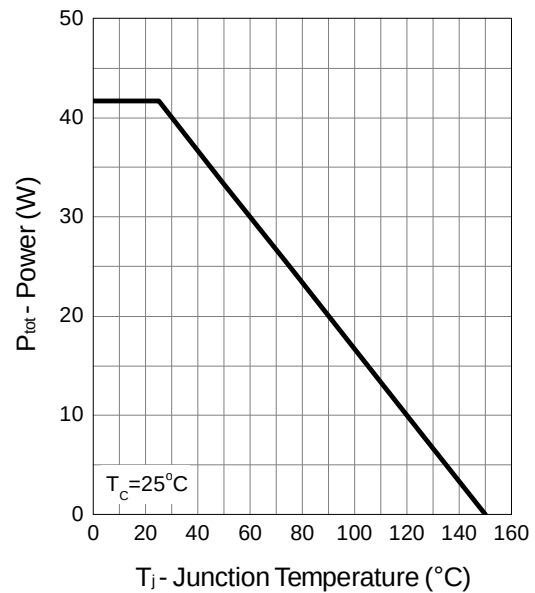
Note g : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

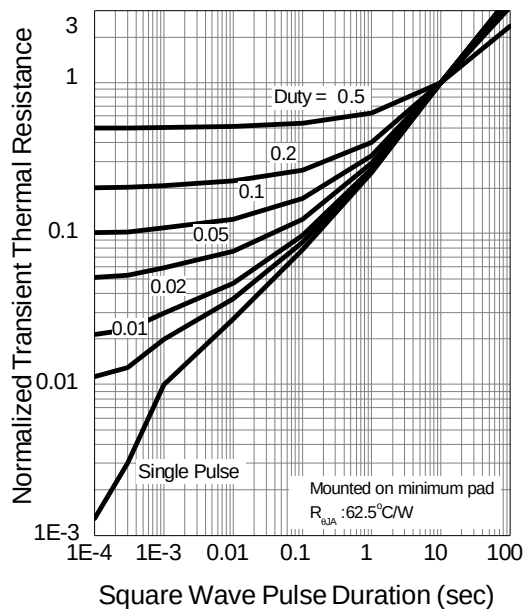
Power Dissipation



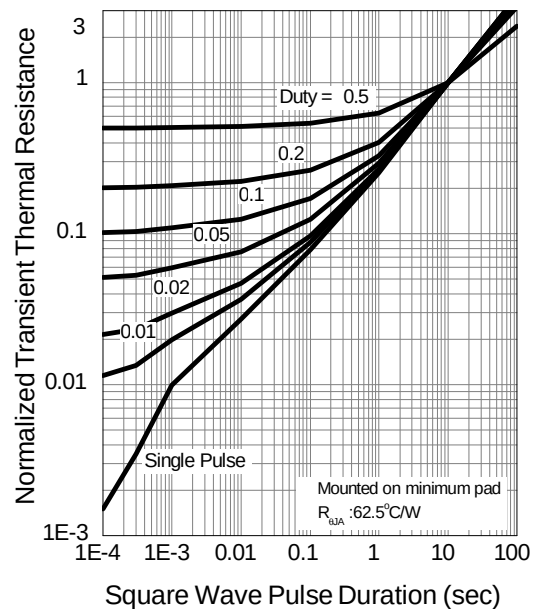
Power Dissipation



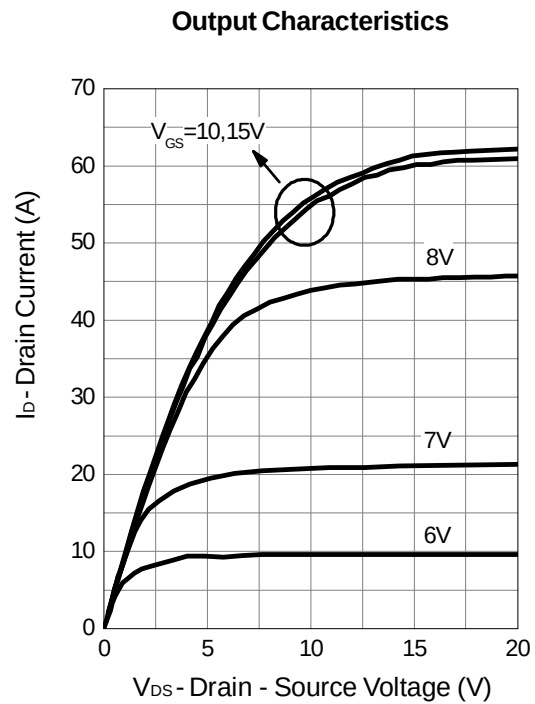
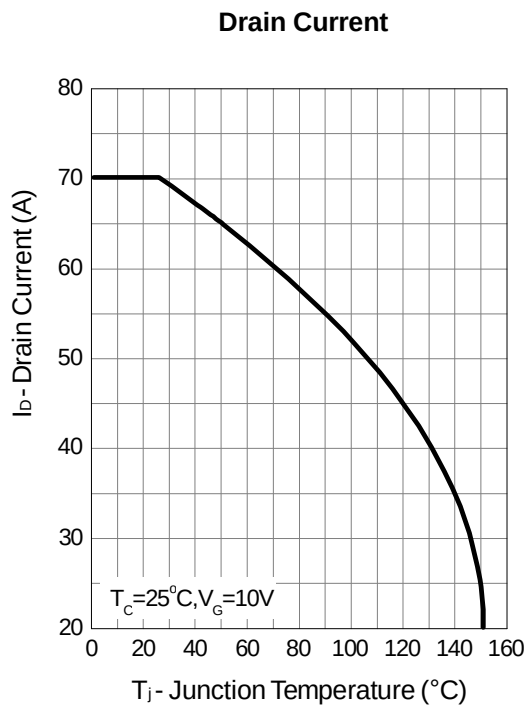
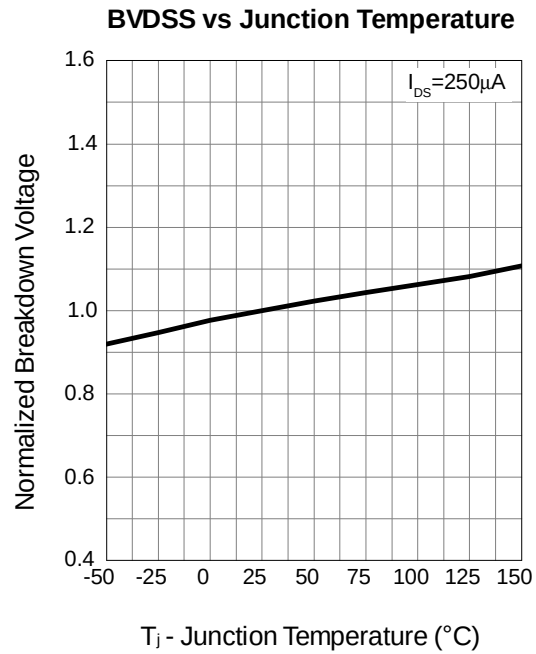
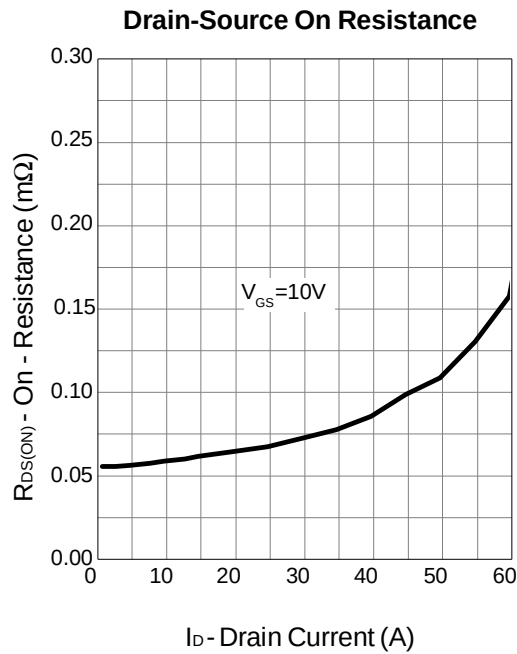
Thermal Transient Impedance



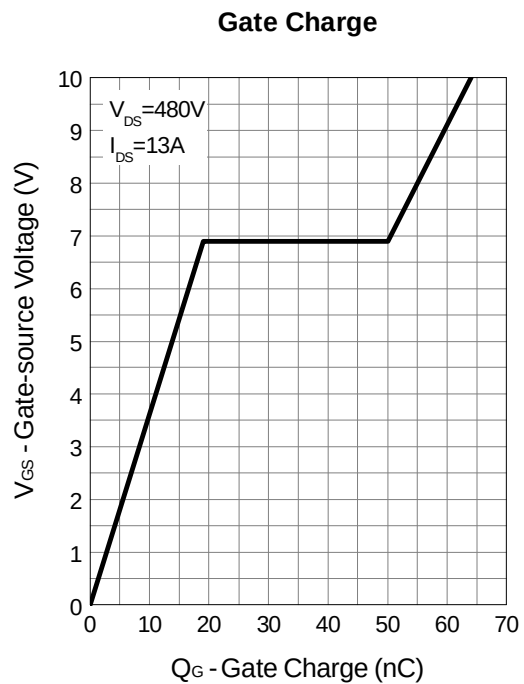
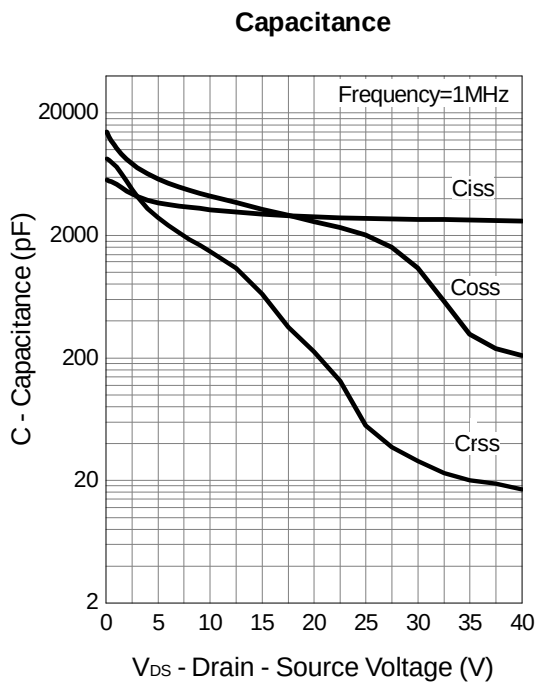
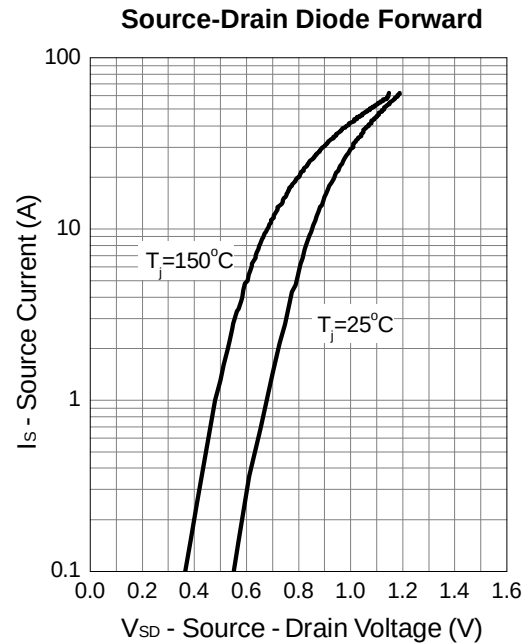
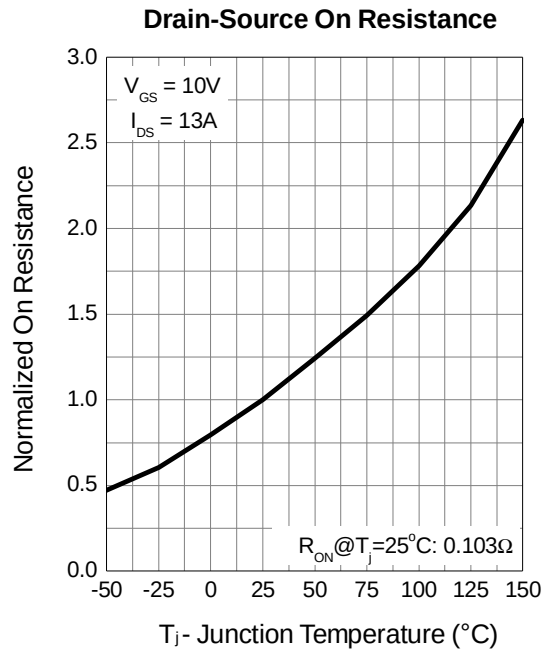
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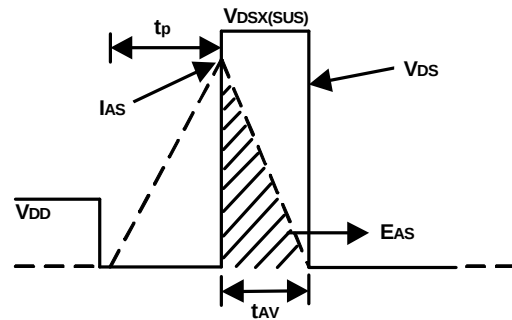
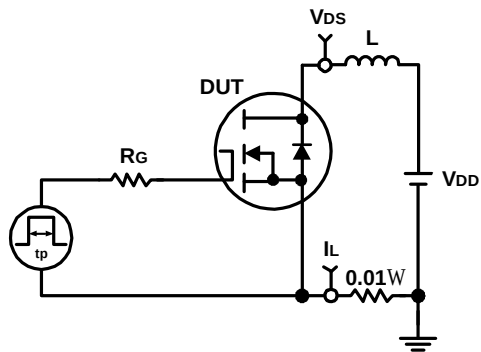
Typical Operating Characteristics (Cont.)



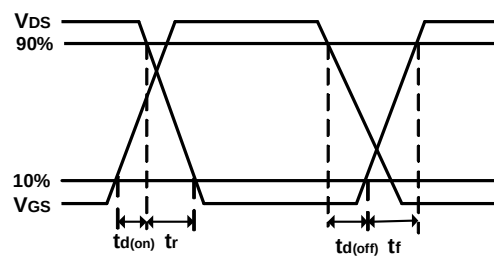
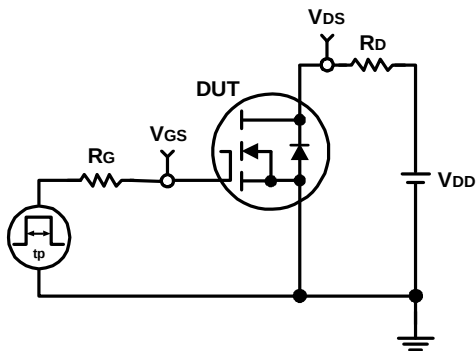
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

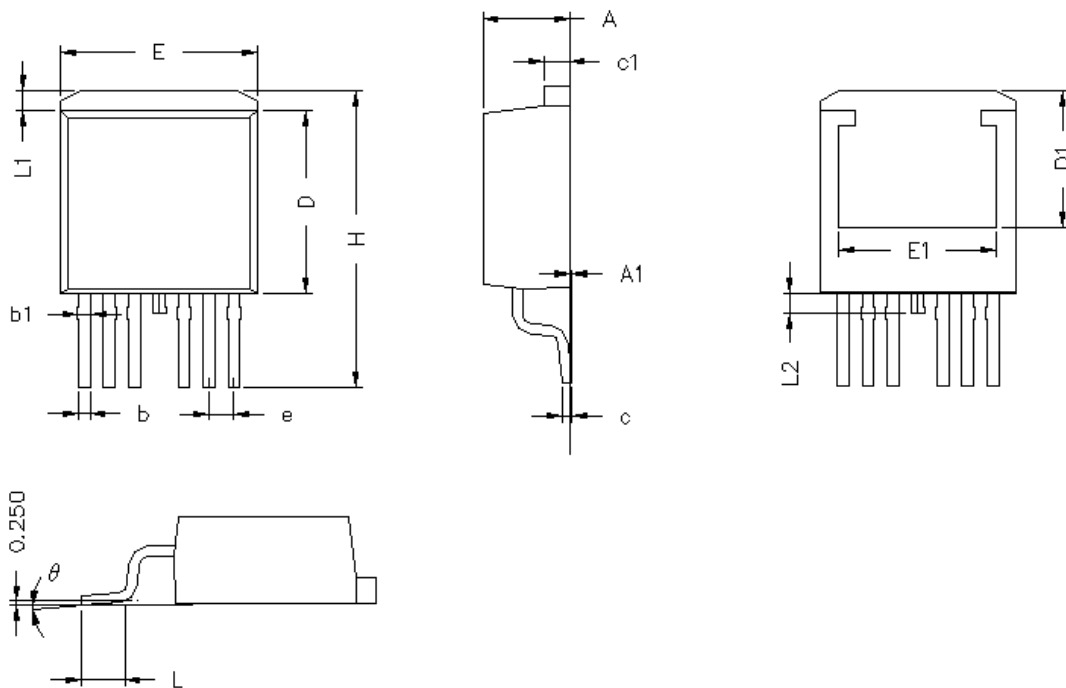


Switching Time Test Circuit and Waveforms



Package Information

TO-263-6



SYMBOLS	TO-263-6			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.25	4.55	0.167	0.179
A1	0.01	0.25	0.000	0.010
b	0.50	0.70	0.020	0.028
b1	0.60	0.84	0.024	0.033
c	0.40	0.60	0.016	0.024
c1	1.20	1.40	0.047	0.055
D	9.05	9.45	0.356	0.372
D1	6.90	9.00	0.272	0.354
E	9.80	10.20	0.386	0.402
E1	7.25	9.00	0.285	0.354
e	1.27 BSC		0.05 BSC	
H	14.65	15.35	0.577	0.604
L	2.40	3.00	0.094	0.118
L1	0.80	1.20	0.031	0.047
L2	0.85	1.15	0.033	0.045
θ	2°	8°	2°	8°

RECOMMENDED LAND PATTERN

