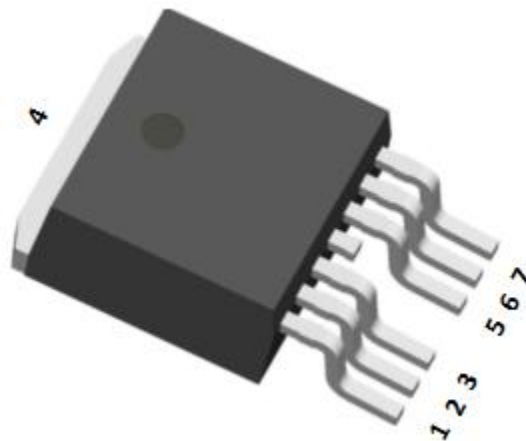


1. Features

- n $R_{DS(on)}=3.5m\Omega$ (typ.) @ $V_{GS}=10V$
- n 100% avalanche tested
- n Reliable and rugged
- n Lead free and green device available (RoHS Compliant)

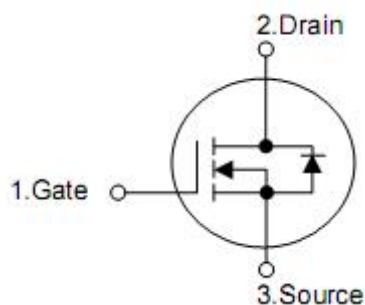
2. Applications

- n Switching application
- n Power management for inverter systems



TO-263-6L

3. Symbol



Pin	Function
1	Gate
2	Source
3	Source
4	Drain
5	Source
6	Source
7	Source

4. Absolute maximum ratings

($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-source voltage	V_{DSS}	80	V
Gate-source voltage	V_{GSS}	± 25	V
Maximum junction temperature	T_J	175	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to 175	$^{\circ}\text{C}$
Diode continuous forward current	$T_C=25^{\circ}\text{C}$ I_S	200	A
Continuous drain current	$T_C=25^{\circ}\text{C}$ I_D	200	A
	$T_C=100^{\circ}\text{C}$	114	A
Pulse drain current ^{1,2}	$T_C=25^{\circ}\text{C}$ I_{DM}	660	A
Avalanche energy, single pulsed ³	$L=0.5\text{mH}$ E_{AS}	1.1	J
Maximum power dissipation	$T_C=25^{\circ}\text{C}$ P_D	178	W
	$T_C=100^{\circ}\text{C}$	89	W

Note: 1>Repetitive rating; pulse width limited by junction temperature;
 2 >Drain current is limited by junction temperature;
 3> $V_D=64\text{V}$.

5. Thermal characteristics

Parameter	Symbol	Rating	Unit
Thermal resistance, Junction-ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Thermal resistance, Junction-case	$R_{\theta JC}$	0.7	$^{\circ}\text{C/W}$

6. Electrical characteristics

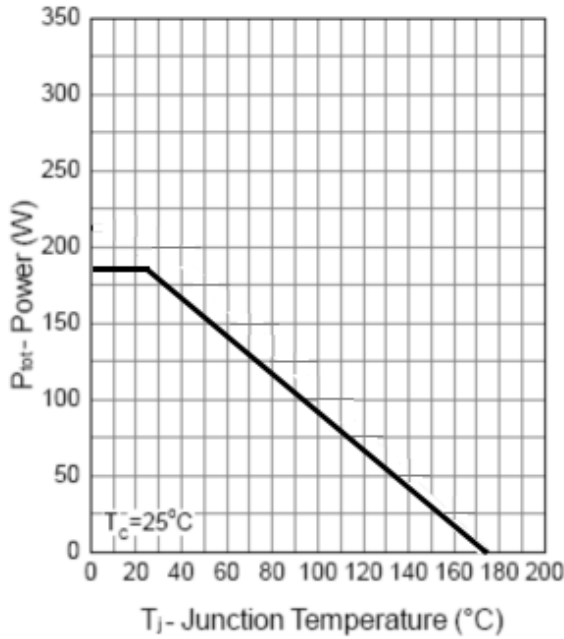
(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	80	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =64V, V _{GS} =0V T _J =85°C	-	-	1	μA
			-	-	10	
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.0	4.0	V
Gate leakage current	I _{GSS}	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
Drain-source on-state resistance	R _{DS(on)} *	V _{GS} =10V, I _D =85A	-	3.5	4.0	mΩ
Gate resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.8	-	Ω
Diode forward voltage	V _{SD} *	I _{SD} =85A, V _{GS} =0V	-	0.8	1.3	V
Reverse recovery time	t _{rr}	I _{SD} =85A, dI _{SD} /dt=100A/μs	-	30	-	nS
Reverse recovery charge	Q _{rr}		-	52	-	nC
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz	-	6100	-	pF
Output capacitance	C _{oss}		-	990	-	
Reverse transfer capacitance	C _{rss}		-	530	-	
Turn-on delay time	t _{d(on)}	V _{DD} =40V, I _{DS} =85A, R _G =6Ω, V _{GS} =10V	-	28	-	ns
Rise time	t _r		-	18	-	
Turn-off delay time	t _{d(off)}		-	42	-	
Fall time	t _f		-	54	-	
Total gate charge	Q _g	V _{DS} =64V, V _{GS} =10V I _{DS} =85A	-	152	-	nC
Gate-source charge	Q _{gs}		-	25	--	
Gate-drain charge	Q _{gd}		-	53	--	

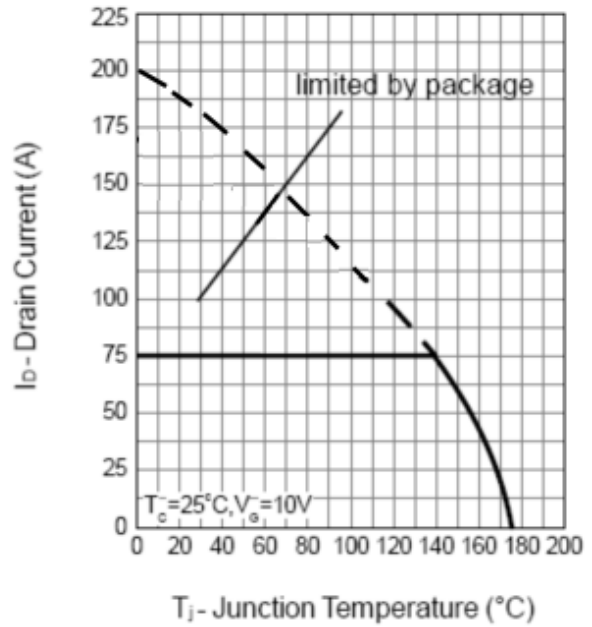
Note*: Pulse test; pulse width ≤ 300μs duty cycle ≤ 2%.

7. Test circuits and waveforms

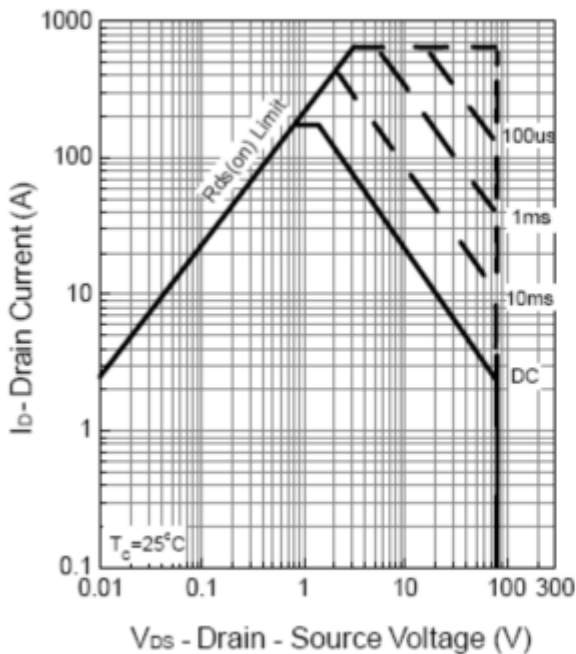
Power Dissipation



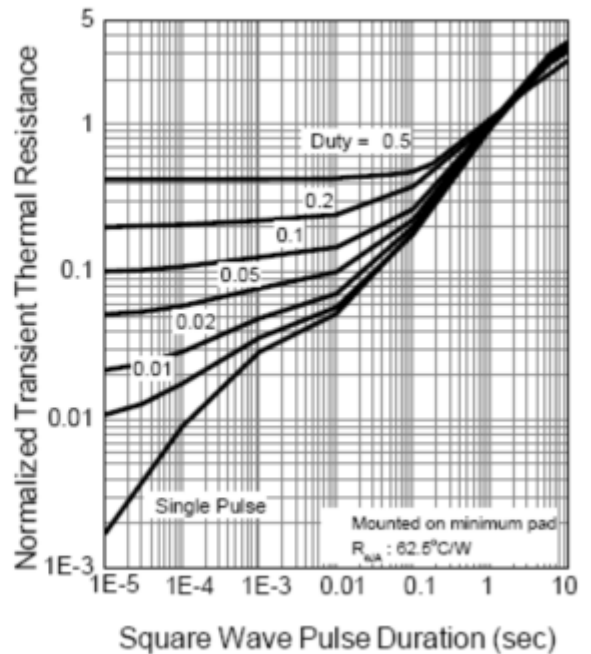
Drain Current



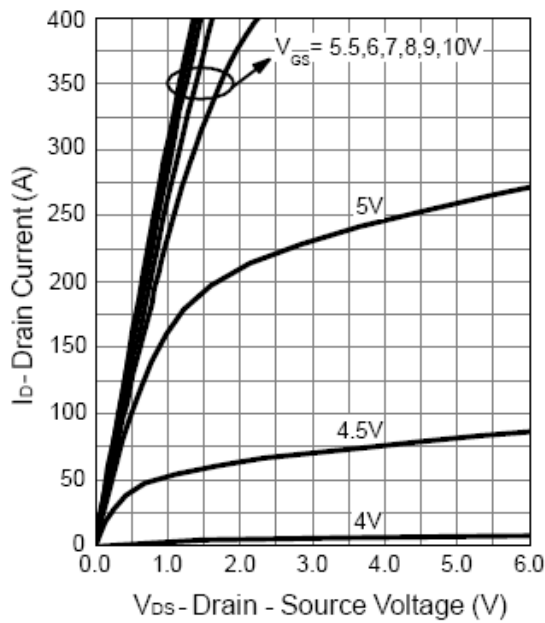
Safe Operation Area



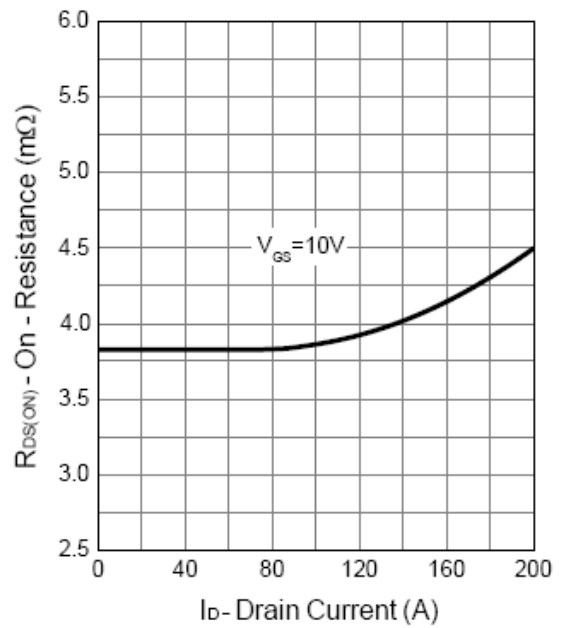
Thermal Transient Impedance



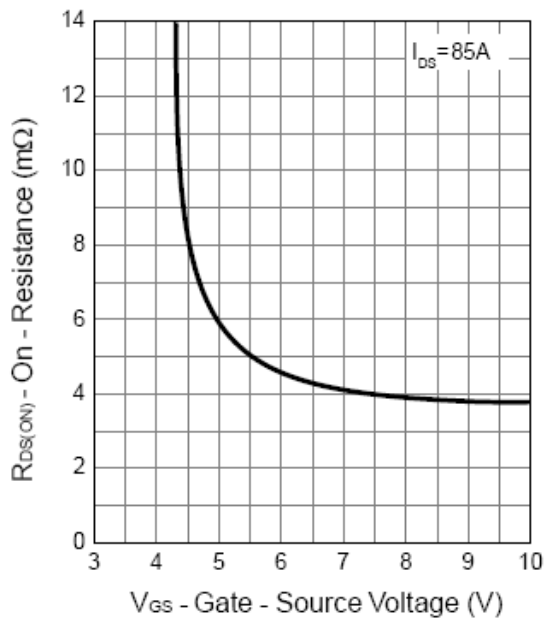
Output Characteristics



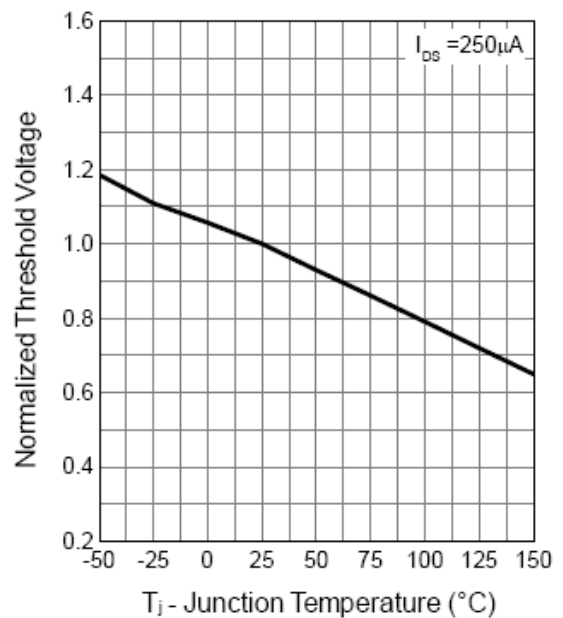
Drain-Source On Resistance



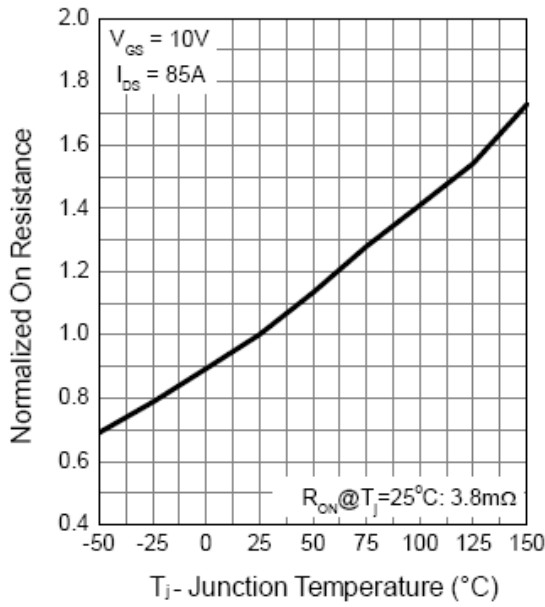
Gate-Source On Resistance



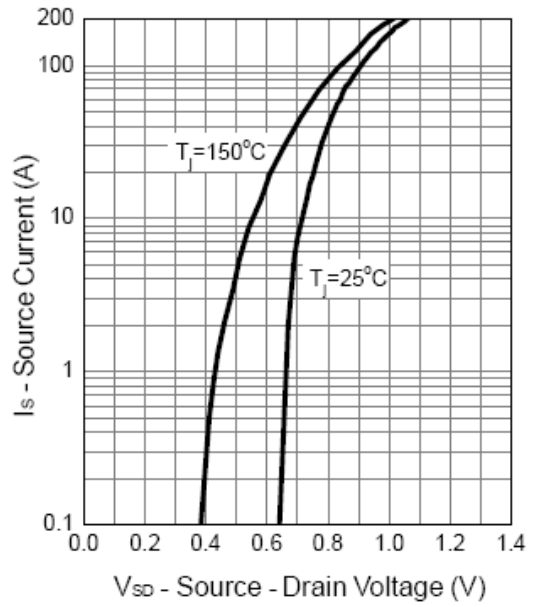
Gate Threshold Voltage



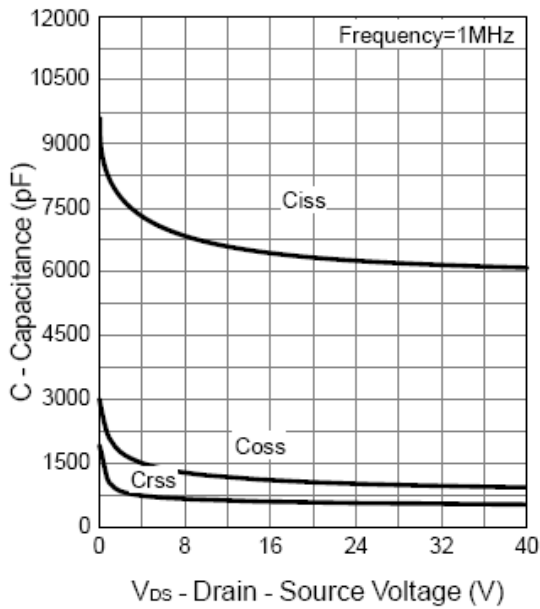
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge

