

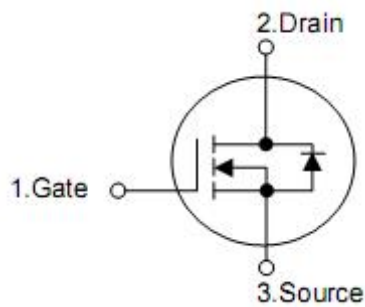
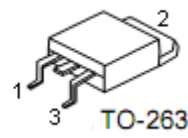
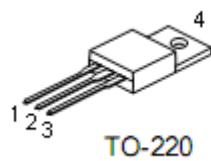
1. Features

- n $R_{DS(on)}=11m\Omega$ (typ.) @ $V_{GS}=10V$
- n 100% avalanche tested
- n Reliable and rugged
- n Lead free and green device available (RoHS Compliant)

2. Applications

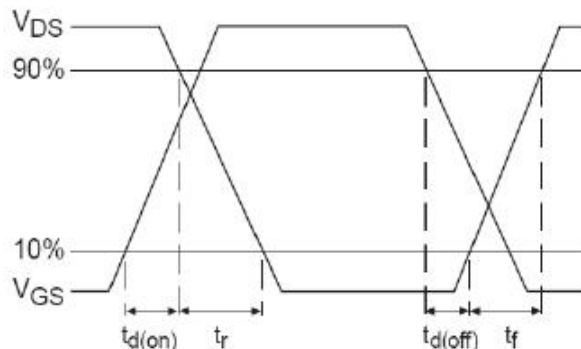
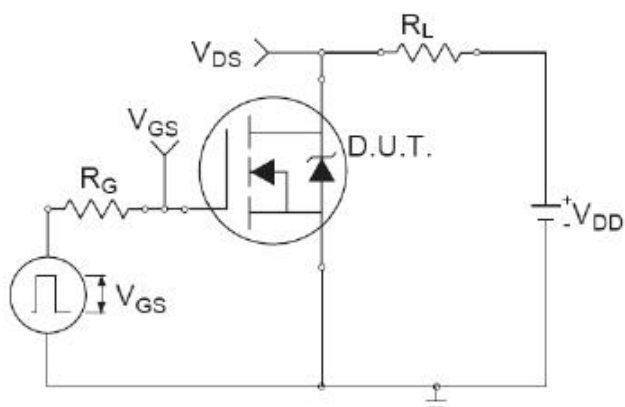
- n Switching application
- n Power management for inverter systems

3.Symbol



Pin	Function
1	Gate
2	Drain
3	Source
4	Drain

4. Switching Time Test Circuit and Waveforms



5. Absolute maximum ratings

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

Parameter	Symbol	Rating		Units	
		To-220/263	To-252		
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		$^{\circ}\text{C}$	
Continuous drain current	I_D^3	$T_C=25^{\circ}\text{C}$	70	60	A
		$T_C=100^{\circ}\text{C}$	46	36	A
Pulsed drain current	I_{DP}	$T_C=25^{\circ}\text{C}$ 240		A	
Avalanche current	I_{AS}	70		A	

6. Electrical characteristics

(T_A=25°C, unless otherwise noted)

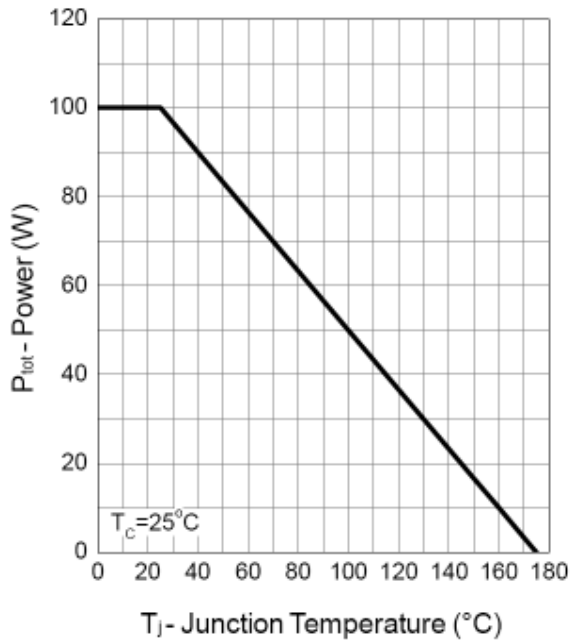
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	80	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =24V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.0	4.0	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 _{DS} =35A (TO-220/TO-263)	-	11	12	mΩ
		V _{GS} =10V, I _{DS} =35A (TO-252)	-	11	15	mΩ
Gate resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.5	-	Ω
Diode forward voltage	V _{SD}	I _{SD} =20A, V _{GS} =0V	-	0.8	1.3	V
Reverse recovery time	t _{rr}	I _{SD} =35A, di _{SD} /dt=100A/μs	-	44	-	nS
Reverse recovery charge	Q _{rr}		-	60	-	nC
Input capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz	-	2900	-	pF
Output capacitance	C _{oss}		-	290	-	
Reverse transfer capacitance	C _{rss}		-	175	-	
Turn-on delay time	t _{d(on)}	V _{DD} =30V, I _{DS} =1A, R _L =30Ω, V _{GEN} =-10V R _G =6Ω	-	14	25	ns
Rise time	t _r		-	11	20	
Turn-off delay time	t _{d(off)}		-	51	92	
Fall time	t _f		-	22	40	
Total gate charge	Q _g	V _{DS} =30V, V _{GS} =10V I _{DS} =35A	-	55	77	nC
Gate-source charge	Q _{gs}		-	12	--	
Gate-drain charge	Q _{gd}		-	16	--	

Note : 1. Pulse test; pulse width ≤ 300μs duty cycle ≤ 2%.

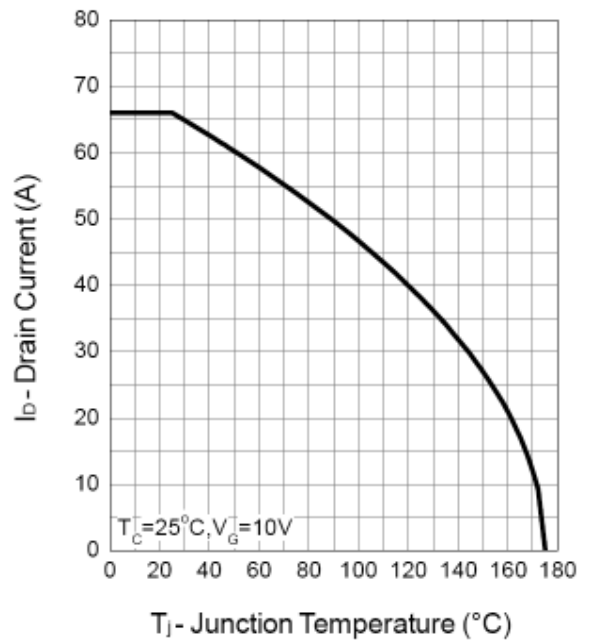
2. Guaranteed by design, not subject to production testing.

7. Test circuits and waveforms

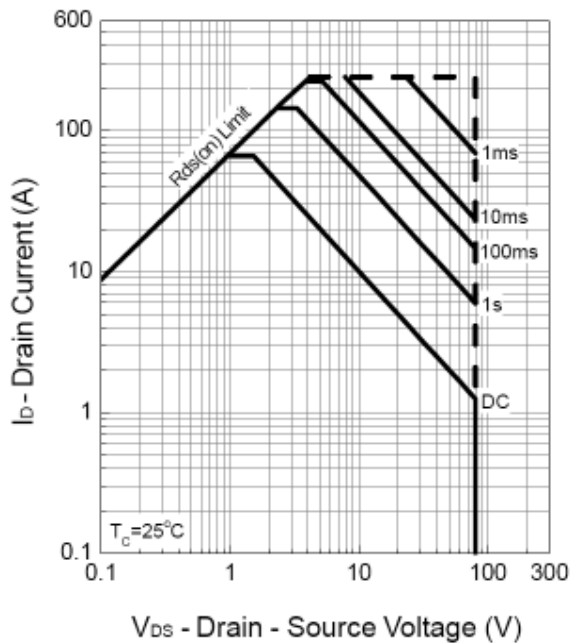
Power Dissipation



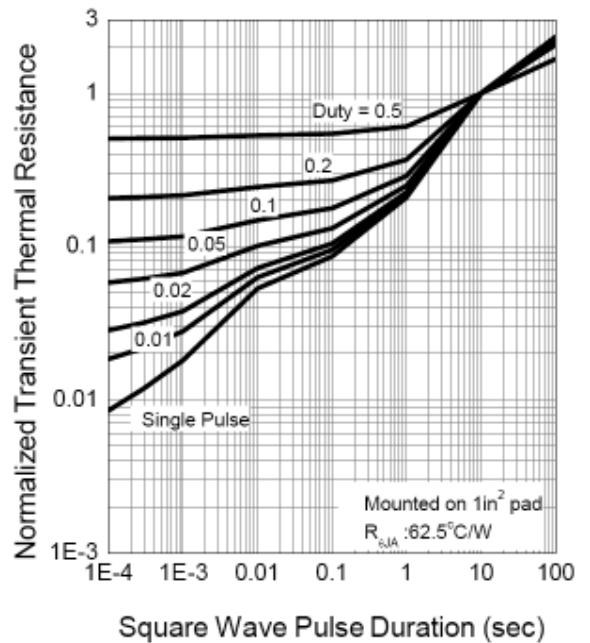
Drain Current



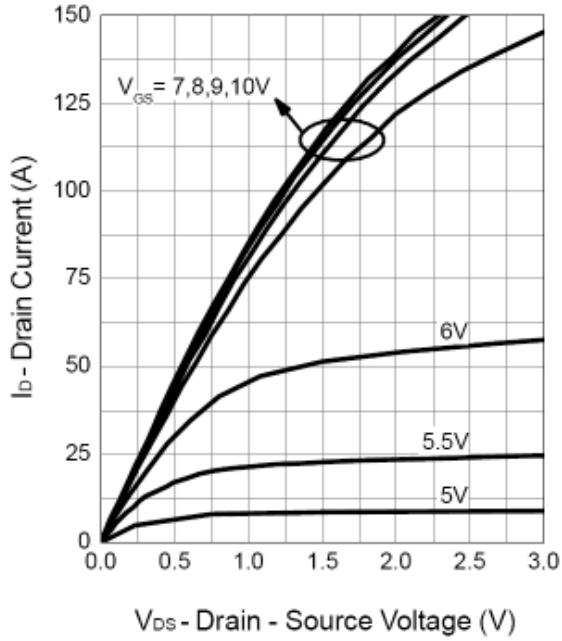
Safe Operation Area



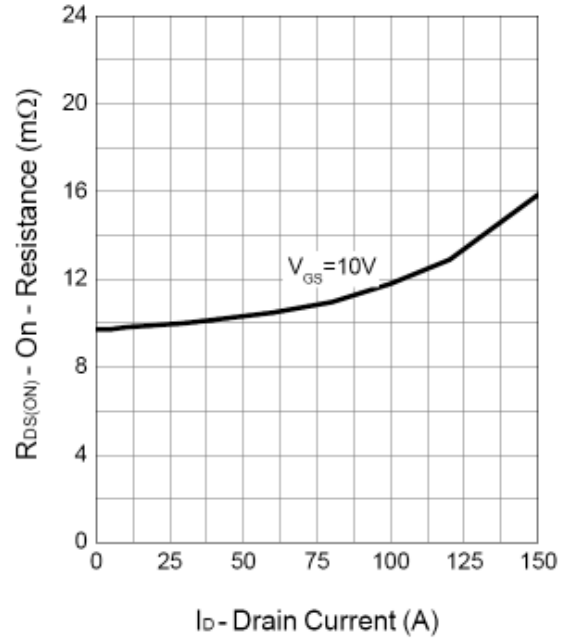
Thermal Transient Impedance



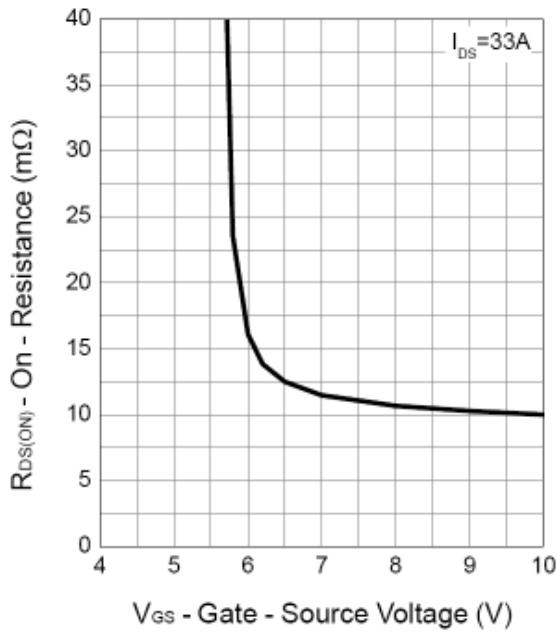
Output Characteristics



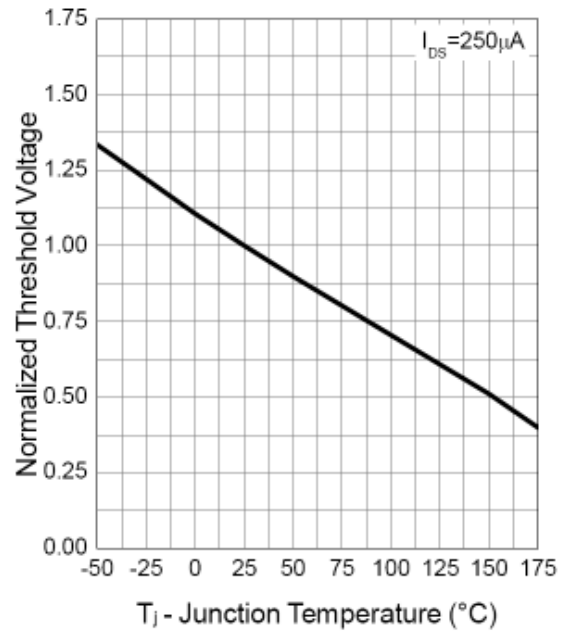
Drain-Source On Resistance



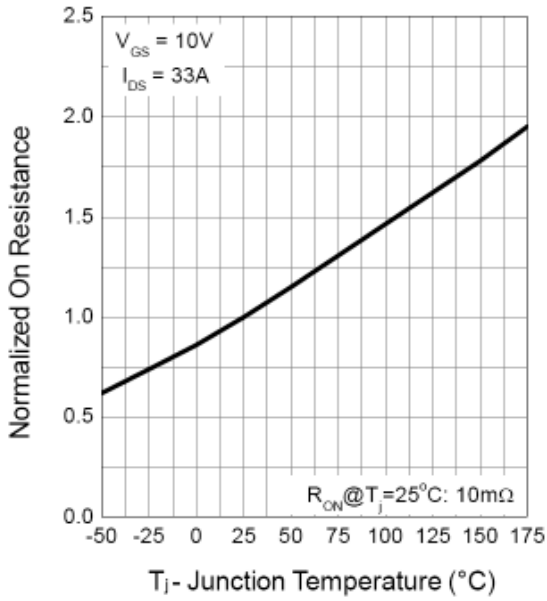
Gate-Source On Resistance



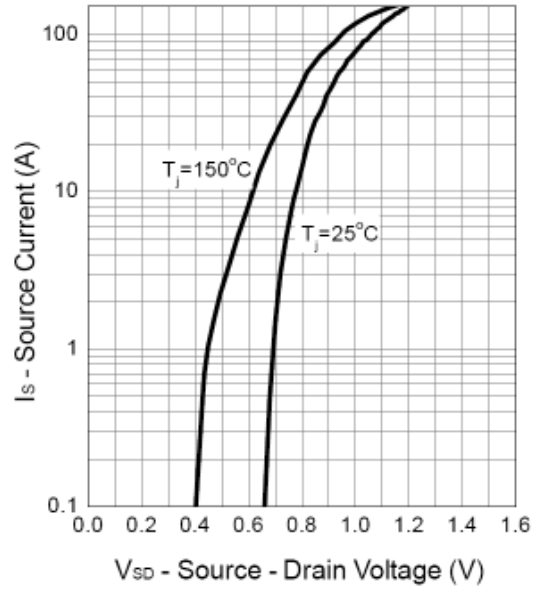
Gate Threshold Voltage



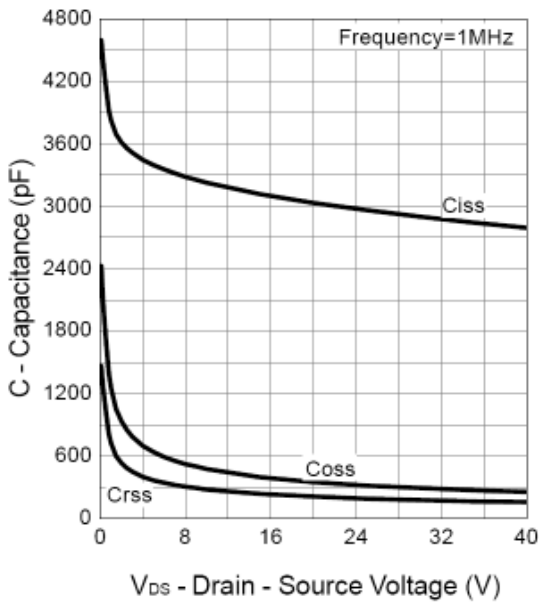
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge

