

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	4mΩ@10V	55A
	5mΩ@4.5V	

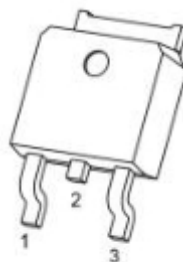
Feature

- Trench Power Technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Optimized for Fast-switching Applications

Application

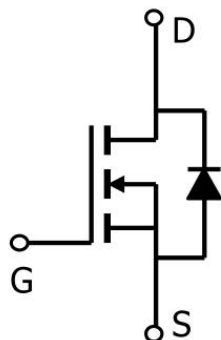
- High Speed Power Switching
- DC/DC Converters

Package

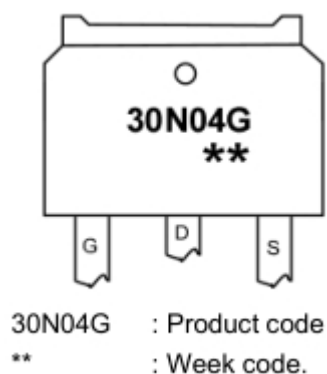


TO-252 (G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current (TC=25°C)	I _D	55	A
Pulsed Drain Current	I _{DM}	220	A
Single Pulse Avalanche Energy	E _{AS}	121	mJ
Power Dissipation (TC=25°C)	P _D	28	W
Thermal Resistance,Junction-to-Case	R _{θJC}	4.46	°C/W
Operating Junction and Storage Temperature Range	T _{STG} , T _J	-55~+150	°C

Electrical characteristics

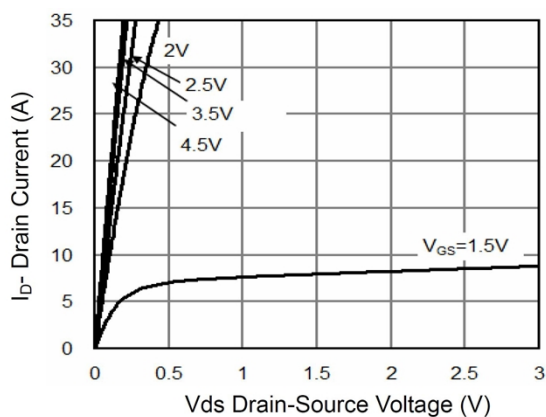
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =24V,V _{GS} = 0V			1	uA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V			±100	uA
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.7	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		4	5	mΩ
		V _{GS} =4.5V, I _D =20A		5	6.7	
		V _{DS} =5V, I _D =45A		60		
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =40V, f=1MHz		1124		pF
Output Capacitance	C _{oss}			425		
Reverse Transfer Capacitance	C _{rss}			30		
Total Gate Charge	Q _g	V _{DS} =15V, I _D =20A, V _{GS} =10V		14		pF
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			3.1		
Turn-On Delay Time	T _{d(on)}	V _{DD} =15V, V _{GS} =10V, I _D =20A, R _G =1.6Ω		6.4		nS
Rise Time	T _r			2.6		
Turn-Off Delay Time	T _{d(off)}			16.5		
Fall Time	T _f			2.7		
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =45A			1.2	V

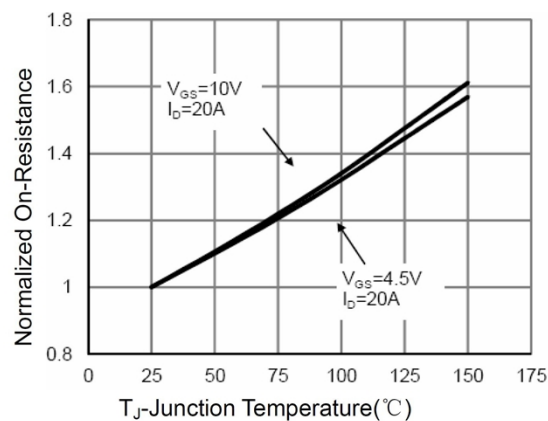
Notes:

1. E_{AS} condition: $V_{DD} = 15V, V_G=10V, L=0.5mH, R_g=25\Omega, T_J = 25^{\circ}\text{C}$.

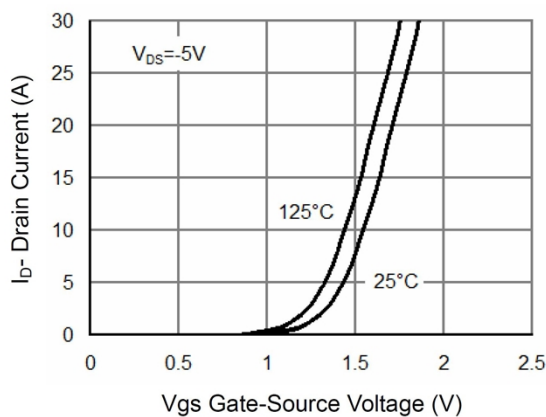
Typical Characteristics



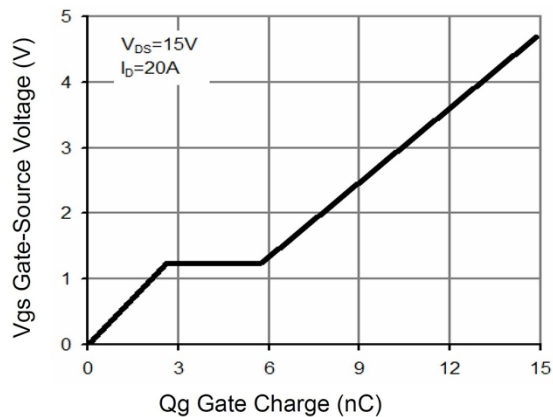
Output Characteristics



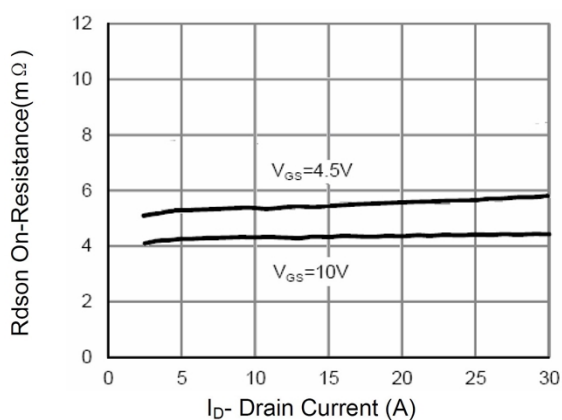
$R_{DS(on)}$ -Junction Temperature



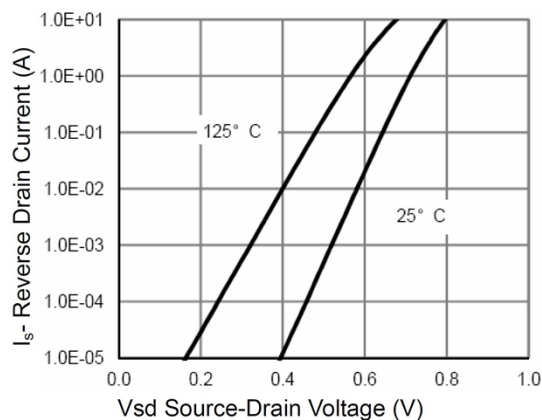
Transfer Characteristics



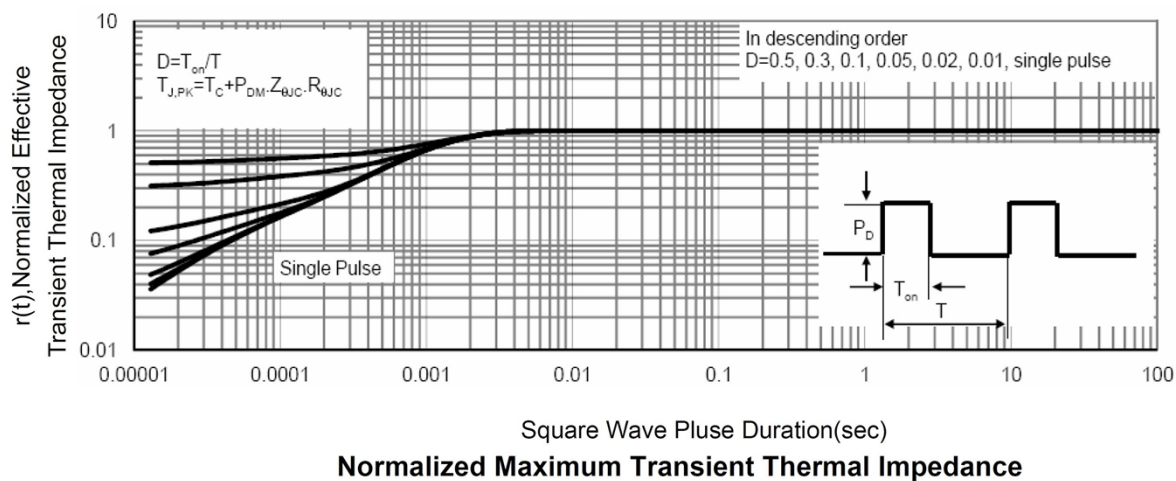
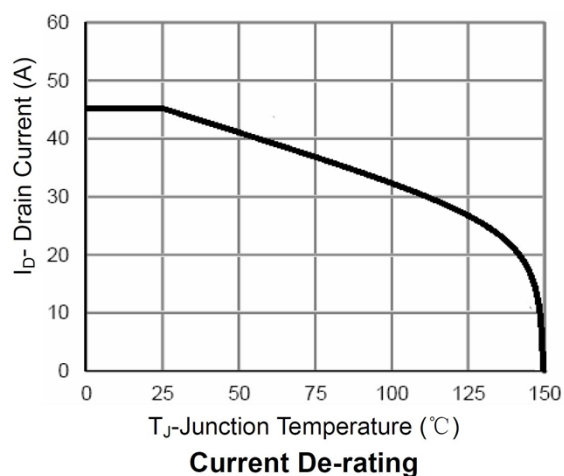
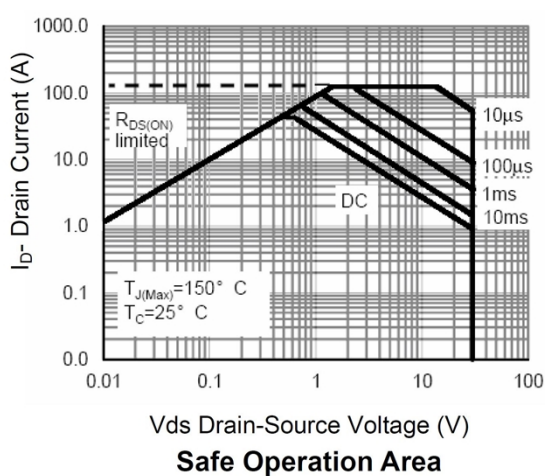
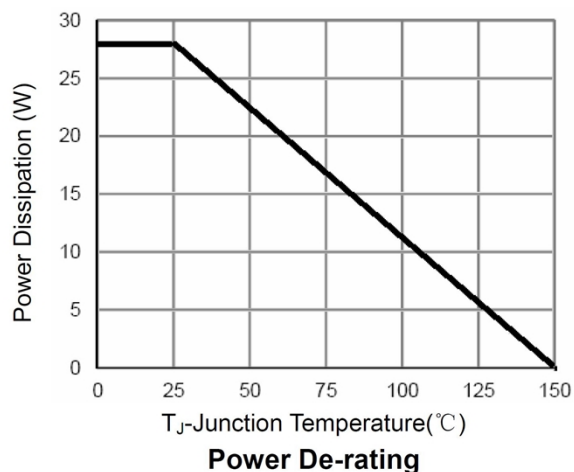
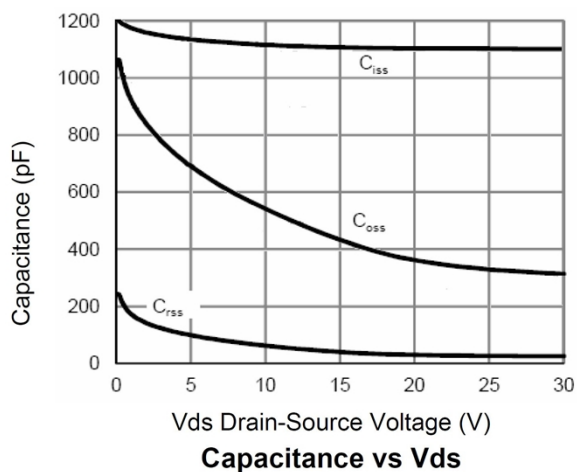
Gate Charge



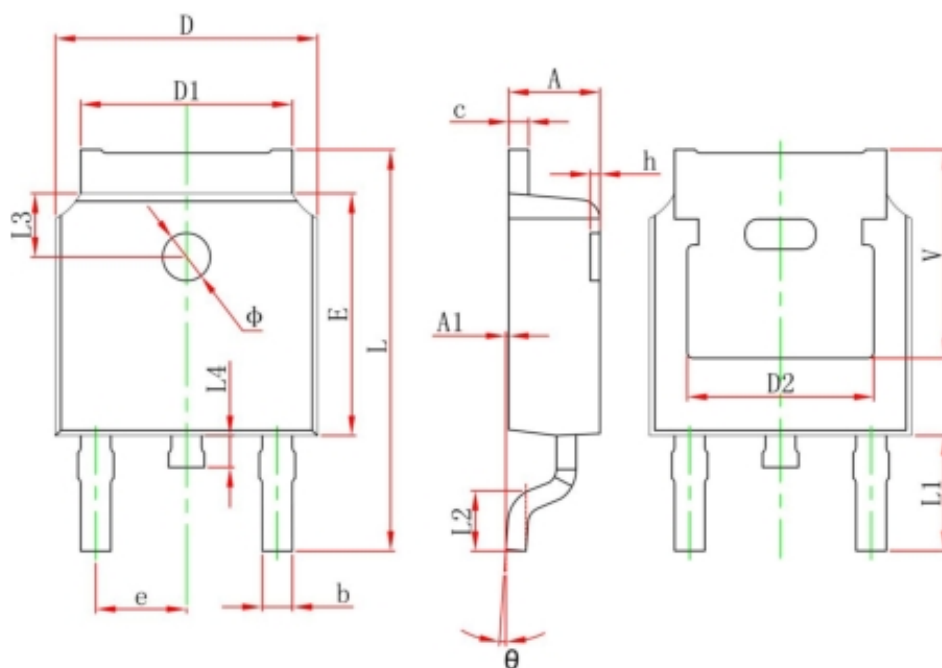
$R_{DS(on)}$ - Drain Current



Source- Drain Diode Forward



TO-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	