

$V_{DS}=25V$

$R_{DS(ON)}, V_{GS}@10V, I_{DS}@30A = 8.5m$

$R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@30A = 13m$

FEATURES

Advanced trench process technology

High density cell design for ultra low on-resistance

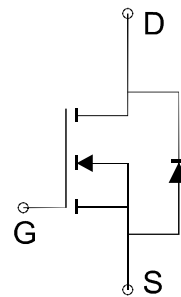
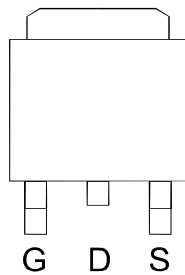
Specially designed for DC/DC converters and motor drivers

Fully characterized avalanche voltage and current

PIN CONFIGURATION

(TO-252)

Top View



Absolute Maximum Ratings ($T_A=25$ Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit	
Drain-Source Voltage		V_{DSS}	25	V	
Gate-Source Voltage		V_{GSS}	± 20	V	
Continuous Drain Current		I_D	50	A	
Pulsed Drain Current		I_{DM}	100	A	
Maximum Power Dissipation	$T_A=25$	P_D	50	W	
	$T_A=70$		23		
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		
Avalanche Energy with Single Pulse ($L=0.5mH, R_g=25$)		E_{AS}	110	mJ	
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	T 10 sec	15	/W
			Steady State	40	
Thermal Resistance-Junction to Case		$R_{\theta JC}$	20	/W	

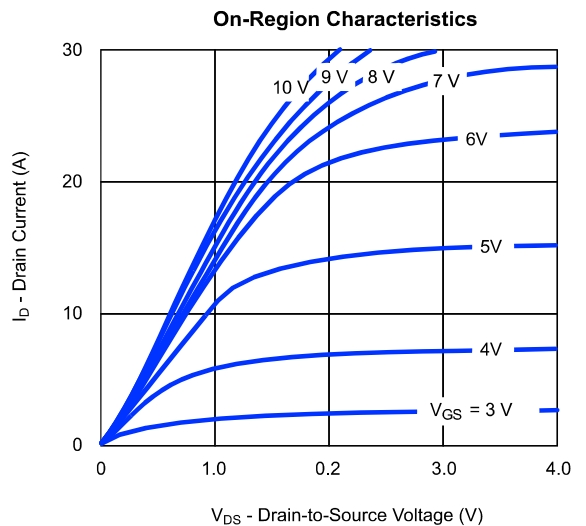
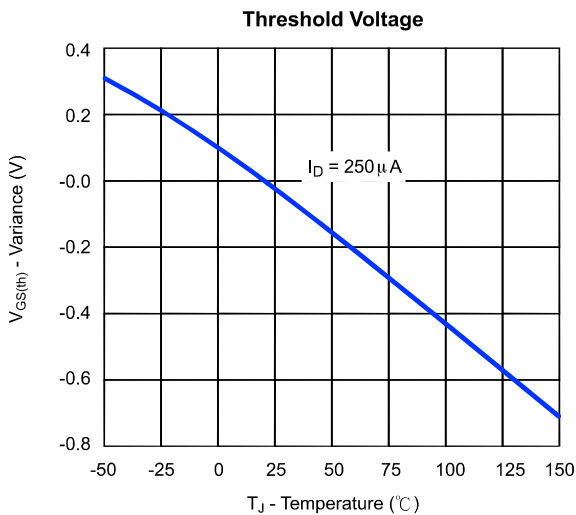
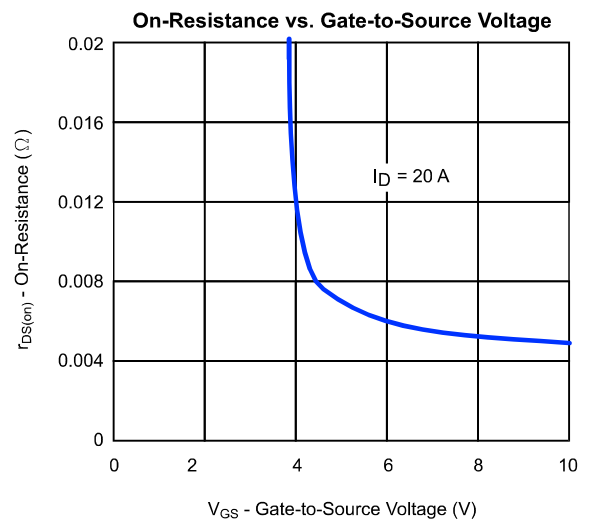
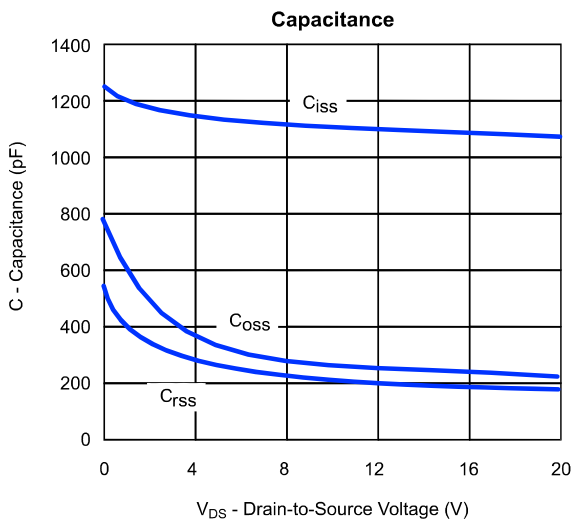
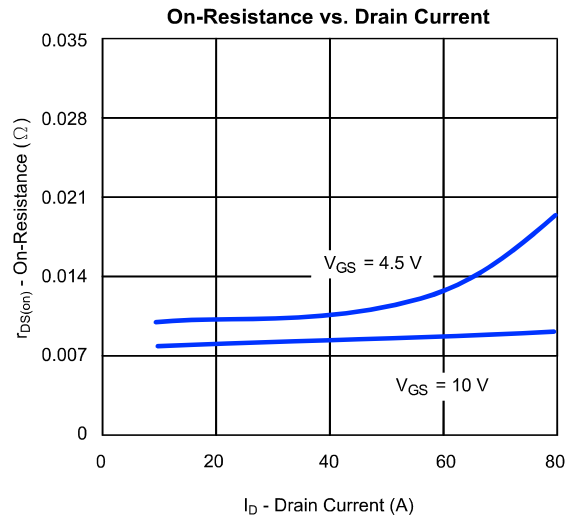
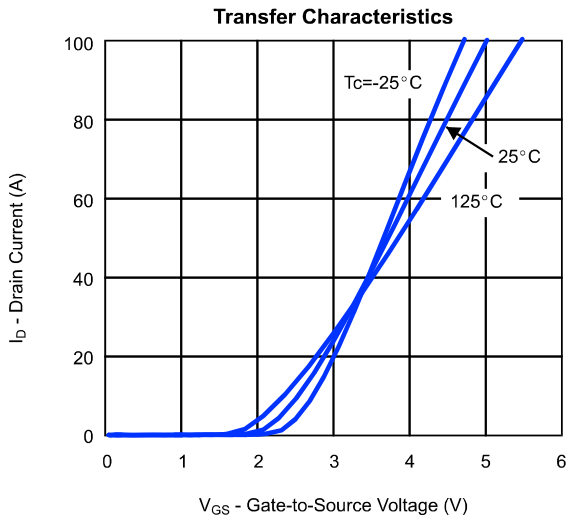
*The device mounted on 1in² FR4 board with 2 oz copper

Electrical Characteristics (T_A = 25 Unless Otherwise Specified)

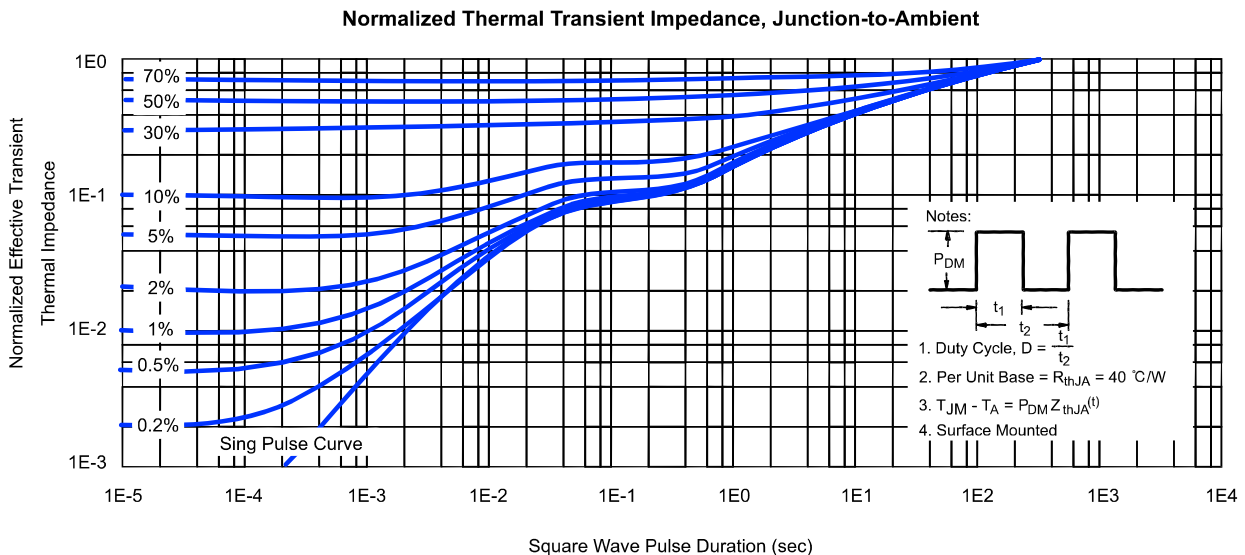
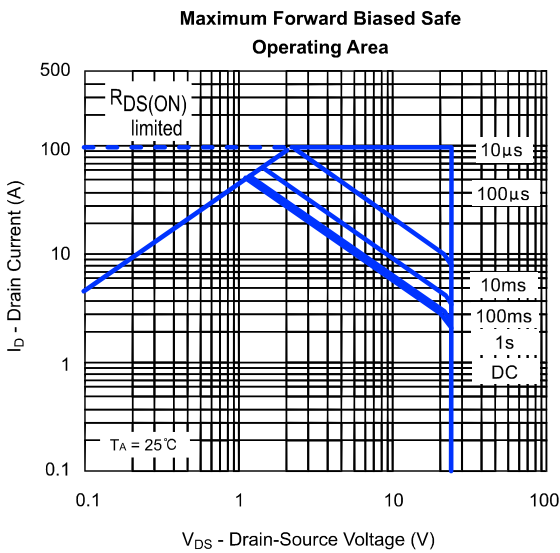
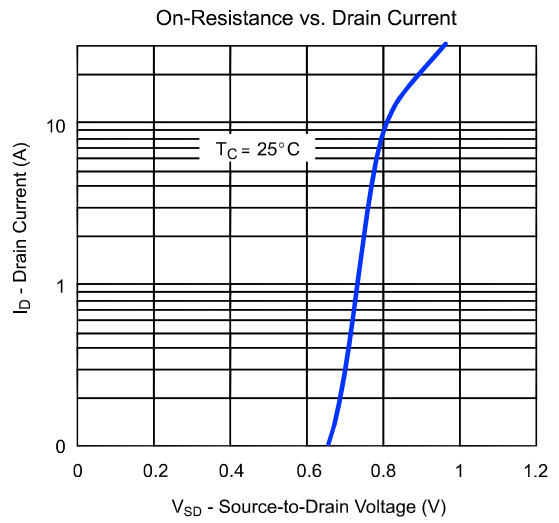
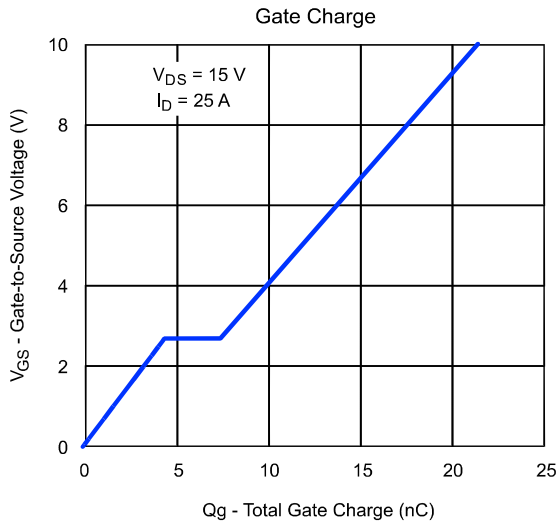
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	25			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	1	1.6	3	V
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =30A		6.5	8.5	m
		V _{GS} =4.5V, I _D =30A		10	13	
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =35A		22	25	nC
Q _{gs}	Gate-Source Charge			4.5		
Q _{gd}	Gate-Drain Charge			4		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		1100	1300	pF
C _{oss}	Output Capacitance			240		
C _{rss}	Reverse Transfer Capacitance			190		
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz		2.5		
t _{d(on)}	Turn-On Delay Time	R _L =15 Ω, V _{GEN} =10V, I _D =1A V _{DD} =15V, R _G =24 Ω		13	17	ns
t _r	Turn-On Rise Time			10	13	
t _{d(off)}	Turn-Off Delay Time			46	58	
t _f	Turn-Off Fall Time			7	10	
SOURCE-DRAIN DIODE						
I _S	Max.Diode Forward Current				20	A
V _{SD}	Diode Forward Voltage	I _S =20A, V _{GS} =0V		0.87	1.5	V

Note: Pulse test: pulse width < =300us, duty cycle < =2%

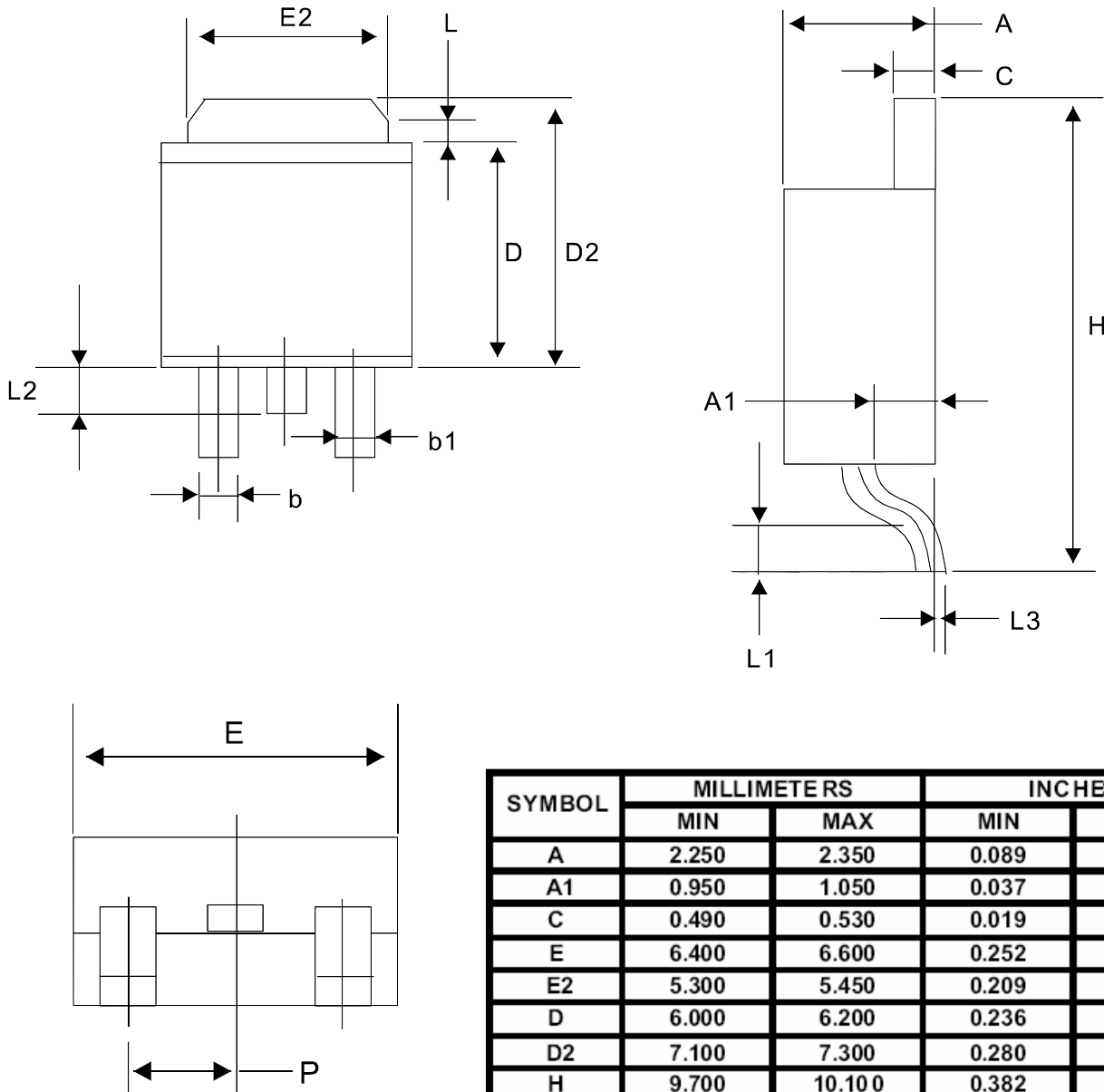
Typical Characteristics (T_J = 25 °C Noted)



Typical Characteristics (T_J = 25 °C Noted)



TO-252 Package Outline



SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.250	2.350	0.089	0.093
A1	0.950	1.050	0.037	0.041
C	0.490	0.530	0.019	0.021
E	6.400	6.600	0.252	0.260
E2	5.300	5.450	0.209	0.215
D	6.000	6.200	0.236	0.244
D2	7.100	7.300	0.280	0.287
H	9.700	10.100	0.382	0.398
L	0.600	Ref	0.024	Ref
L1	1.425	1.625	0.056	0.064
L2	0.650	0.850	0.026	0.033
L3	0.020	0.120	0.001	0.005
b	0.770	0.850	0.030	0.033
b1	0.840	0.940	0.033	0.037
P	2.290	BSC	0.090	BSC