30V N-Channel Enhancement-Mode MOSFET

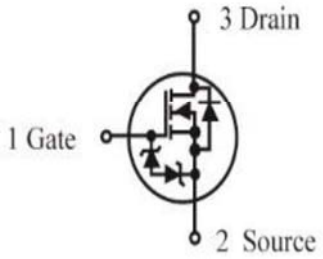
1. FEATURES

- V(BR)DSS=30V
  RDS(ON)≤100mΩ@VGS =4.5V
  RDS(ON)≤130mΩ@VGS =2.5V
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

SOT–323

2. APPLICATIONS

- DC-DC converter circuit
- Small Signal Switch
- Load Switch
- Level Shift



3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
FTK1482	2W	3000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter		Symbol	10S	Steady State	Unit
Drain-Source voltage		VDS	30		Vdc
Gate-Source Voltage		VGS	±12		Vdc
Continuous Drain Current(Note 1)	TA=25℃	ID	2.0	1.5	A
	TA=70℃		1.6	1.15	
Maximum Power Dissipation(Note 1)	TA=25℃	PD	0.37	0.31	W
	TA=70℃		0.23	0.20	
Continuous Drain Current(Note 2)	TA=25℃	ID	1.6	1.25	A
	TA=70℃		1.4	1.0	
Maximum Power Dissipation(Note 2)	TA=25℃	PD	0.29	0.23	W
	TA=70℃		0.18	0.14	
Pulsed Drain Current(Note 3)		IDM	3.5		A
Operating Junction Temperature		TJ	150		℃
Lead Temperature		TL	260		℃
Storage Temperature Range		Tstg	-55~+150		℃

5. THERMAL CHARACTERISTICS

Parameter		Symbol	Min	Typ.	Max	Unit
Junction-to-Ambient Thermal Resistance(Note 1)	t ≤ 10s	RθJA	-	275	335	℃/W
	Steady State		-	325	395	
Junction-to-Ambient Thermal Resistance(Note 2)	t ≤ 10s		-	375	430	
	Steady State		-	445	535	
Junction-to-Case Thermal Resistance	Steady State	RθJC	-	260	300	

1.Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

2.Surface mounted on FR4 board using minimum pad size, 1oz copper

3.Repetitive rating, pulse width limited by junction temperature, tp =10μs, Duty Cycle=1%

4.Repetitive rating, pulse width limited by junction temperature TJ =150°C.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-to-Source Breakdown Voltage (ID =250μA, VGS =0V)	V(BR)DSS	30	-	-	V
Zero Gate Voltage Drain Current (VDS =16V, VGS =0V)	IDSS	-	-	1	μA
Gate-to-source Leakage Current (VDS =0V, VGS =±5V)	IGSS	-	-	± 10	μA

ON CHARACTERISTICS

Gate Threshold Voltage (VDS =VGS , ID =250μA)	VGS(th)	0.6	-	1.4	V
Static Drain-Source On resistance (VGS = 4.5V, ID = 0.55A)	RDS(ON)	-	75	100	mΩ
(VGS = 2.5V, ID = 0.45A)		-	95	130	

CHARGES, CAPACITANCES AND GATE RESISTANCE

Input Capacitance	(VGS = 0 V, f = 100 KHz, VDS =10 V)	Ciss	-	247	-	pF
Output Capacitance		Coss	-	33	-	
Reverse Transfer Capacitance		Crss	-	5	-	
Total Gate Charge	(VGS = 4.5 V, VDS = 10 V,ID = 1A)	Qg	-	4.7	-	nC
Threshold Gate Charge		Qg	-	3.6	-	
Gate-to-Source Charge		Qgs	-	1.9	-	
Gate-to-Drain Charge		Qgd	-	1.6	-	

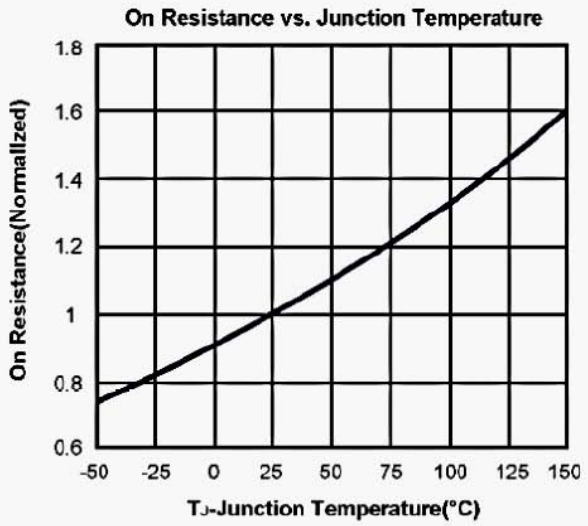
SWITCHING CHARACTERISTICS

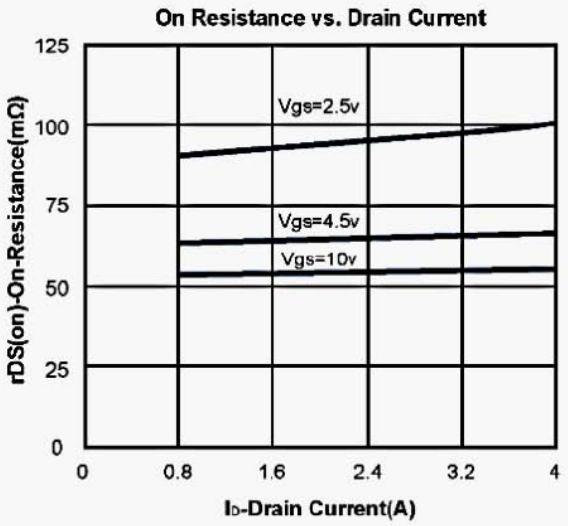
Turn-On Delay Time	(VDD =10V, VGS =4.5V,ID =1A, RG =6Ω)	tD(on)	–	98	–	ns
Turn-On Rise Time		tr	–	128	–	
Turn-Off Delay Time		tD(off)	–	2600	–	
Turn-Off Fall Time		tf	–	677	–	

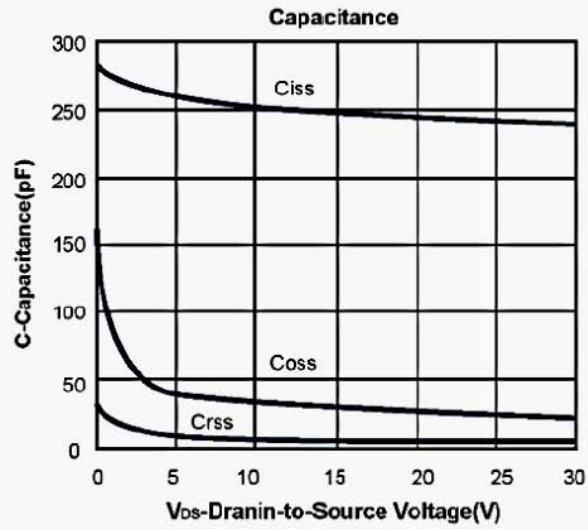
BODY DIODE CHARACTERISTICS

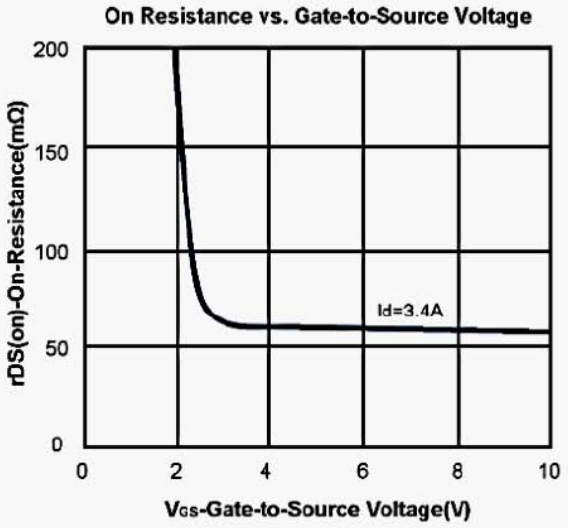
Diode Forward Voltage (VGS = 0 V, IS = 2A)	VSD		0.8	1.2	V

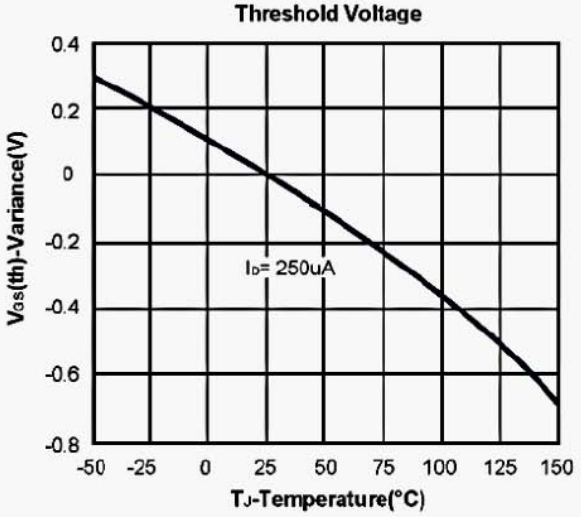
Typical Characteristics

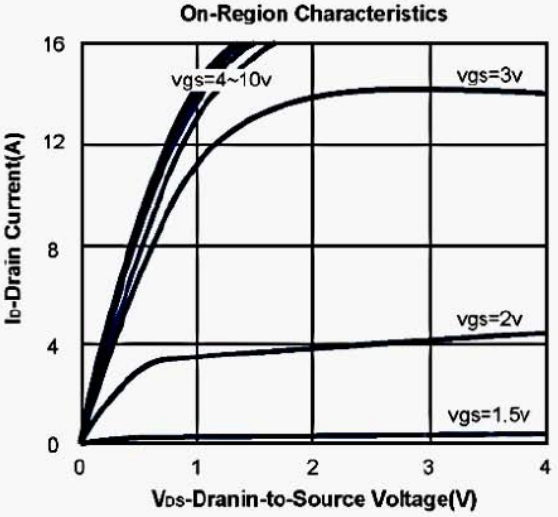


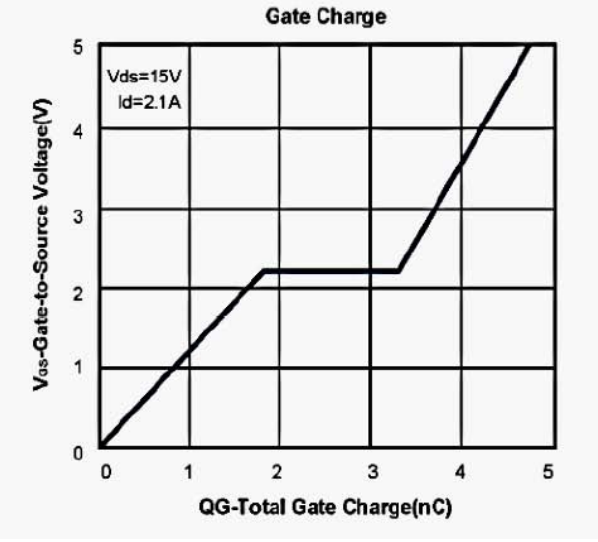


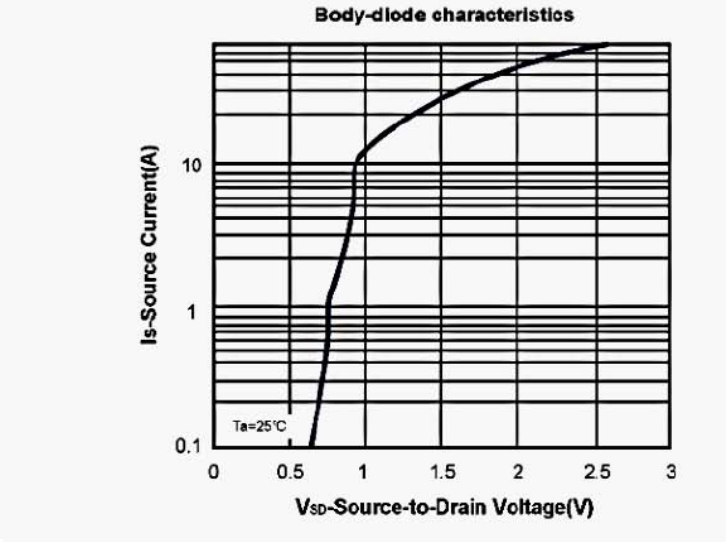


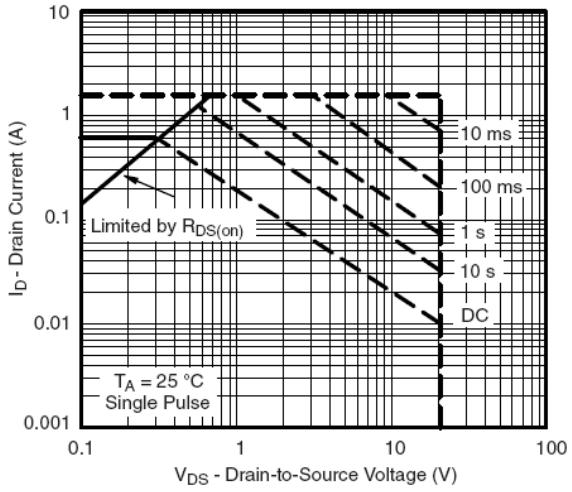




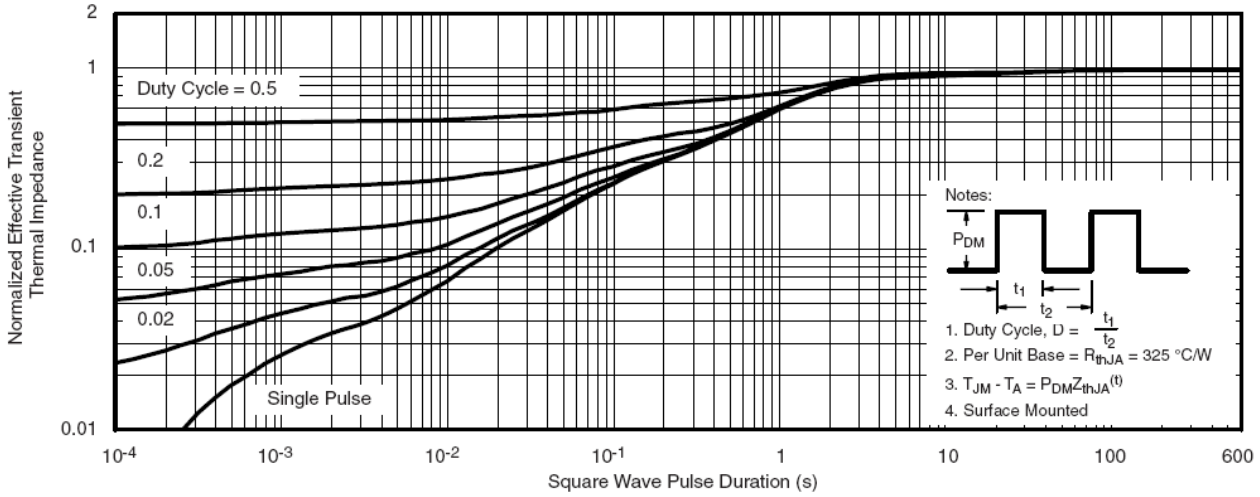






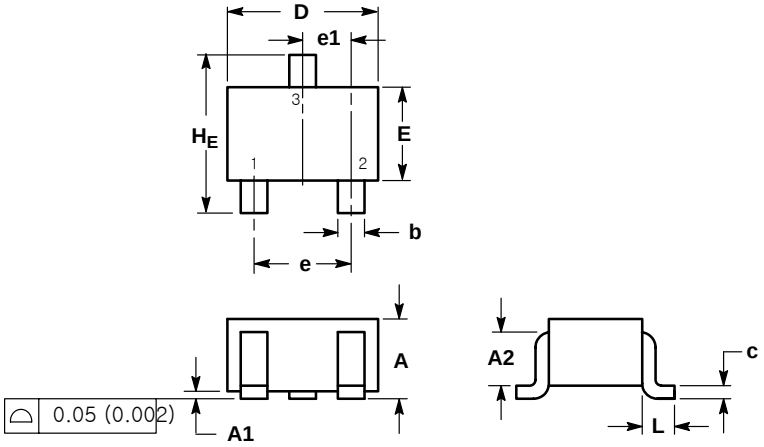


Safe operating power



Transient thermal response (Junction-to-Ambient)

SC−70 / SOT−323



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	0 95	1.10	0 033	0.035	0.043
A1	0.00	0 05	0.10	0.000	0.002	0.004
A2		0.7 REF			0 028 REF	
b	0.30	0 35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	2.00	2.10	2.20	0.079	0.083	0.087
E	1.15	1 24	1.35	0.045	0.049	0.053
e	1.20	1 30	1.40	0.047	0.051	0.055
e1		0.65 BSC			0 026 BSC	
L		0.425 REF			0 017 REF	
H_E	2.15	2 30	2.45	0 085	0.091	0 096

SOLDERING FOOTPRINT*