

14849 Firestone Boulevard · La Mirada, CA 90638
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

Designer's Data Sheet

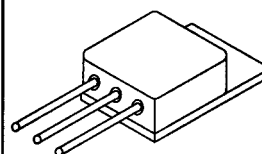
FEATURES:

- Rugged construction with poly silicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed package
- TX, TXV and Space Level screening available
- Replaces: IRFM140 Types

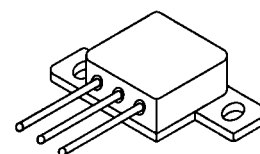
SFF140M
SFF140Z

28 AMP
100 VOLT
0.077 Ω
N-CHANNEL
POWER MOSFET

TO-254



TO-254Z



MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V _{DS}	100	Volts
Gate to Source Voltage	V _{GS}	±20	Volts
Continuous Drain Current	I _D	28	Amps
Operating and Storage Temperature	Top & Tstg	-55 to +175	°C
Thermal Resistance, Junction to Case	R _{θJC}	1.7	°C/W
Total Device Dissipation @ TC=25°C	P _D	74	Watts
Total Device Dissipation @ TC=55°C		56	

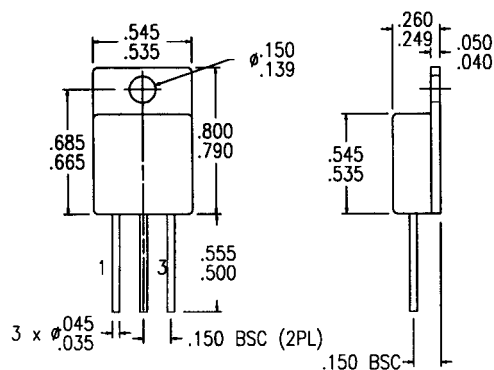
PACKAGE OUTLINE: TO-254

PIN OUT:

PIN 1: DRAIN

PIN 2: SOURCE

PIN 3: GATE



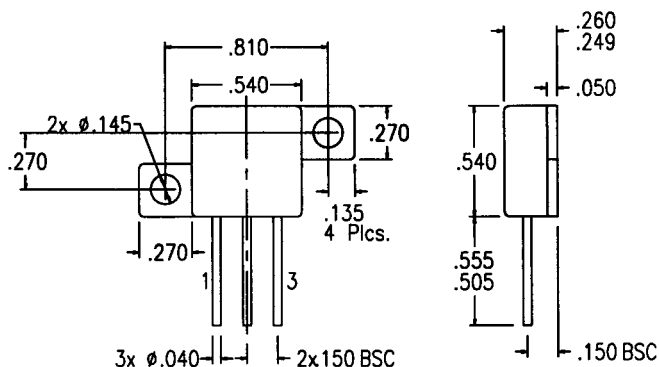
PACKAGE OUTLINE: TO-254Z

PIN OUT:

PIN 1: DRAIN

PIN 2: SOURCE

PIN 3: GATE



Available with Glass or Ceramic Seals. Contact Factory for details.

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: F00033 C

MED

SFF140M SFF140Z

PRELIMINARY



SOLID STATE DEVICES, INC

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ELECTRICAL CHARACTERISTICS @ $T_J=25^{\circ}\text{C}$ (Unless Otherwise Specified)

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage ($V_{GS}=0\text{ V}$, $I_D=250\mu\text{A}$)		BV_{DSS}	100	---	---	V
Drain to Source on State Resistance ($V_{GS}=10\text{ V}$, $I_D=60\%$ Rated ID)		$R_{DS(on)}$	---	0.06	0.077	Ω
On State Drain Current ($V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $V_{GS}=10\text{ V}$)		$I_D(on)$	28	---	---	A
Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$)		$V_{GS(th)}$	2.0	2.4	4.0	V
Forward Transconductance ($V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $I_{DS}=60\%$ rated ID)		g_{fs}	8.7	13	---	S(Ω)
Zero Gate Voltage Drain Current ($V_{DS}=\text{max rated voltage}$, $V_{GS}=0\text{ V}$) ($V_{DS}=80\%$ rated VDS, $V_{GS}=0\text{ V}$, $T_A=150^{\circ}\text{C}$)		I_{DSS}	---	---	250 1000	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated VGS	I_{GSS}	---	---	100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	$V_{GS}=10\text{ Volts}$ 50% rated VDS Rated ID	Q_g Q_{gs} Q_{gd}	---	40 8 19	60 12 28	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated VDS rated ID $R_G=9.1\Omega$	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	---	15 72 40 50	23 110 60 75	nsec
Diode Forward Voltage ($I_S=\text{rated ID}$, $V_{GS}=0\text{ V}$, $T_J=25^{\circ}\text{C}$)		V_{SD}	---	1.3	2.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	$T_J=25^{\circ}\text{C}$ $I_F=10\text{A}$ $di/dt=100\text{ A}/\mu\text{sec}$	t_{rr} Q_{RR}	70 0.44	150 0.91	300 1.9	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	$V_{GS}=0\text{ Volts}$ $V_{DS}=25\text{ Volts}$ $f=1\text{ MHz}$	C_{iss} C_{oss} C_{rss}	---	1500 500 90	---	pF

SAFE OPERATING AREA (S.O.A.)
 $T_C = 25^{\circ}\text{C}$, D.C. CONDITION

